MISSOURI BASIN WATER PROBLEMS

JOINT HEARINGS

BEFORE THE

COMMITTEE ON

INTERIOR AND INSULAR AFFAIRS

AND THE

COMMITTEE ON PUBLIC WORKS

UNITED STATES SENATE

EIGHTY-FIFTH CONGRESS

FIRST SESSION

ON

PROBLEMS OF OPERATION OF MULTIPLE-PURPOSE PROJECTS IN THE MISSOURI BASIN

MAY 1, 2, AND 3, 1957

PART 1

Printed for the use of the Committee on Interior and Insular Affairs and the Committee on Public Works

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MISSOURI BASIN WATER PROBLEMS

WEDNESDAY, MAY 1, 1957

UNITED STATES SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS; AND
COMMITTEE ON PUBLIC WORKS,
Washington, D. C.

The joint committee met at 10 a. m., pursuant to call, in Room 224, Senate Office Building, Hon. James E. Murray (chairman) presiding.

Present: Senators James E. Murray, Montana; Clinton P. Anderson, New Mexico; Joseph C. O'Mahoney, Wyoming; John A. Carroll, Colorado; Robert S. Kerr, Oklahoma; Francis Case, South Dakota; and Roman L. Hruska, Nebraska.

Senator MURRAY. The committee will come to order, please.

These joint hearings of the Senate Committee on Public Works and the Committee on Interior and Insular Affairs are in response to joint resolutions by three State legislatures and a number of individual and organization requests that we examine the management and operation of projects in the Missouri Valley.

So the record of the hearings will be complete, I will include in the hearings at this point Joint Memorial No. 9 of the Montana State Legislature.

I also submit for the hearing record Joint Resolution No. 2 of the South Dakota Legislature on this subject.

Also, House Concurrent Resolution L, passed by the North Dakota Legislature.

Additionally, I submit for the record a resolution passed by the board of directors of the National Rural Electric Cooperative Association in January 1957.

(Resolutions referred to follow:)

MONTANA HOUSE JOINT MEMORIAL 9

A joint memorial of the Senate and House of Representatives of the State of Montana to the Congress of the United States; James E. Murray and Mike Mansfield, Senators from the State of Montana; Lee Metcalf and LeRoy Anderson, Representatives in Congress from the State of Montana; the Interior and Insular Affairs Committee of the United States Senate; the Interior and Insular Affairs Committee of the United States House of Representatives; the Committee on Public Works of the United States Senate; the Committee on Public Works of the United States House of Representatives; the Secretary of the Army, Wilber M. Brucker; the Chief of the Corps of Engineers, Department of the Army, Maj. Gen. E. C. Itschner; urging the committees to investigate the subordination of power generation on the Missouri River to navigation, and to determine all facts necessary to ascertain the balance between electric power supply and requirements, existing and prospective, in the upper Missouri Basin

Whereas the supply of low-cost Federal power in the upper Missouri Basin is inadequate to meet the foreseeable needs of preference customers; and

Whereas the O'Mahoney-Millikin amendment to the Flood Control Act of 1944 reserves waters arising in States wholly or partly west of the 97th meridian for beneficial uses, including irrigation, which requires large quantities of pumping power; domestic and municipal uses; and industrial uses; and

Whereas it is known that the United States Army Corps of Engineers has been releasing water from Fort Peck, Garrison, and Fort Randall Dams during the navigation season in the lower Missouri River to the detriment of power production, Federal revenue, and good management: Now, therefore, be it

Resolved, That the Legislature of the State of Montana memorializes the Congress of the United States to implement and make effective the mandate intended in the O'Mahoney-Millikin amendment that the use of water for navigation purposes be subordinated to western uses; and be it further

Resolved, That we call upon the Army Corps of Engineers to cease the release of large quantities of water for such subordinate purposes; and be it further

Resolved, That the Legislature of the State of Montana memorializes the Committees on Interior and Insular Affairs and the Committees on Public Works of the United States Senate and House of Representatives to investigate the subordination of power generation on the Missouri River to navigation, and to determine all facts necessary to ascertain the balance between electric power supply and requirements, existing and prospective, in the upper Missouri Basin. Such investigations and determinations should include power supply available considering management of the river in consonance with the O'Mahoney-Millikin principles as well as the need for and the economics of developing steam generation to firm up hydropower now being sold or to be sold by the Government at less than firm power rates; and be it further

Resolved, That copies of this memorial be submitted by the secretary of the State of Montana to each of the individuals and to the chairmen of the committees named in the title of this memorial and also to the presiding officers of both Houses of the Congress of the United States, Richard M. Nixon, and Sam E. Rayburn.

EUGENE H. MAHONEY,
Speaker of the House.
PAUL CANNON,
President of the Senate.

SOUTH DAKOTA HOUSE CONCURRENT RESOLUTION NO. 2

A CONCURRENT RESOLUTION

Concurrent resolution memorializing the Interior and Public Works Committee of the United States Senate to investigate the administration of certain sections of Public Law No. 534 and requesting the South Dakota Congressional delegation, to the Congress, to assist in these investigations

Be it resolved by the House of Representatives of the State of South Dakota, the Senate concurring therein;

Whereas water is a limited and precious resource and its conservation and proper use is of utmost importance to all of the people of South Dakota; and

Whereas water is urgently needed in South Dakota for municipal purposes, domestic uses, industrial development, irrigation, power generation, and recreation; and

Whereas the United States and the 10 States of the Missouri Basin are proceeding with the development of the land and water resources of the area under the provisions of Public Law No. 534 known as the Flood Control Act of 1944; and

Whereas the Congress, in its wisdom, rightly and properly added to this act section I, subdivision B, commonly known as the O'Mahoney-Milliken amendment to preserve the basin's limited water for beneficial upstream uses; and

Whereas South Dakota has given generously of its valuable river bottom lands to provide storage sites for the water in the Missouri Basin; and

Whereas there seems reasonable doubt that the Missouri Basin's water is being managed in such a way as to provide the maximum benefit to the people of South Dakota; Now, therefore, be it

Resolved, That the Interior and Public Works Committees of the United States Senate be respectfully requested to instigate investigations in the use

of waters stored in South Dakota under the Flood Control Act of 1944 and particularly with respect to the O'Mahoney-Millikin amendment; And be it further

Resolved, That Senators Karl E. Mundt and Francis Case and Congressmen E. Y. Berry and George McGovern be respectfully requested to aid and assist these investigations in every way practicable to the end that the State of South Dakota may receive the widest possible benefit from its limited water resources.

NORTH DAKOTA HOUSE CONCURRENT RESOLUTION L

Concurrent resolution urging the Congress of the United States and the Committees on Insular Affairs and the Committee on Public Works of the United States Senate and House of Representatives to investigate the subordination of power generation on the Missouri River to navigation.

Whereas the supply of low-cost Federal power in the upper Missouri Basin is inadequate to meet the foreseeable needs of preference customers; and

Whereas it is known that the United States Corps of Engineers has been releasing water from the Fort Peck, Garrison, and Fort Randall Dams during the navigation season in the lower Missouri River to the detriment of power production, Federal revenue, and good management: Now, therefore, be it

Resolved by the House of Representatives of the State of North Dakota (the Senate concurring therein), That we call upon the Congress of the United States to implement and make effective the mandate intended in the O'Mahoney-Millikin amendment that the use of water for navigation purposes be subordinated to western uses; and be it further

Resolved, That we call upon the Army Corps of Engineers to cease the release of large quantities of water for such subordinate purposes; and be it further

Resolved, That the Committees on Interior and Insular Affairs and the Committee on Public Works of the United States Senate and House of Representatives are requested to investigate the subordination of power generation on the Missouri River to navigation, and to determine all facts necessary to ascertain the balance between electric power supply and requirements, existing and prospective, in the upper Missouri Basin. Such investigations and determinations should include a study of power supply available considering management of the river in consonance with the O'Mahoney-Millikin principles as well as the need for and the economics of developing steam generation to firm up hydro power now being sold or to be sold by the Government at less than firm power rates, and such investigation should also consider the feasibility and desirability of low dams with locks to provide a slack-water channel on the Missouri River for navigation; and be it further

Resolved, That copies of this resolution be forwarded by the chief clerk of the house of representatives to the President of the United States, the Committees on Public Works and Interior and Insular Affairs of the United States Senate and House of Representatives, and to each member of the North Dakota congressional delegation.

B. J. WOLF,
Speaker of the House.
GERALD L. STAIR,
Chief Clerk of the House.
CLYDE DUFFY,
President of the Senate.
VIC GILBREATH,
Secretary of the Senate.

RESOLUTION PASSED BY THE BOARD OF DIRECTORS, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION, JANUARY 1957

Whereas the supply of low-cost Federal power in the upper Missouri Basin is inadequate to meet the foreseeable needs of preference customers, and

Whereas the O'Mahoney-Millikin amendment to the Flood Control Act of 1944 reserves waters arising in States wholly or partly west of the 97th meridian for beneficial uses, including irrigation, which requires large quantities of pumping power; domestic and municipal uses; and industrial uses: and

Whereas it is known that the United States Army Corps of Engineers has been releasing water from Fort Peck, Garrison, and Fort Randall Dams during the

navigation season in the lower Missouri River to the detriment of power production, Federal revenue, and good management: Now, therefore, be it

Resolved, That we call upon the Congress of the United States to implement and make effective the mandate intended in the O'Mahoney-Millikin amendment that the use of water for navigation purposes be subordinated to western uses, and, be it further

Resolved, That we call upon the Army Corps of Engineers to cease the release of large quantities of water for such subordinate purposes; and be it further

Resolved, That the Committees on Interior and Insular Affairs and the Committees on Public Works of the United States Senate and House of Representatives are requested to investigate the subordination of power generation on the Missouri River to navigation, and to determine all facts necessary to ascertain the balance between electric power supply and requirements, existing and prospective, in the upper Missouri Basin. Such investigations and determinations should include power supply available considering management of the river in consonance with the O'Mahoney-Millikin principles as well as the need for and the economics of developing steam generation to firm up hydropower now being sold or to be sold by the Government at less than firm power rates, and be it further

Resolved, That copies of this resolution be transmitted by the general manager to the Committees on Interior and Insular Affairs and the Committees on Public Works of the United States Senate and the United States House of Representatives.

Senator MURRAY. I wish at this time to thank for their continued cooperation and participation with us in these hearings and Committee on Public Works, the distinguished Senator from New Mexico, Mr. Chavez, who is chairman of that committee, and the distinguished Senator from Oklahoma, Mr. Kerr, who is chairman of the Public Works Subcommittee on Flood Control which handles these river-basin matters, as well as all the members.

Our two committees are cooperating closely in a study and report on methods of cost allocation for multiple-purpose projects. Senator Kerr and his assistants handled lengthy and exhaustive hearings on the subject during the last session of Congress on which a very constructive and useful report will soon be made. The joint hearings were appropriate, for we need a common procedure for the allocation of cost of multiple-purpose projects, whether built by the Corps of Engineers or the Bureau of Reclamation.

These hearings are simply an extension of our joint explorations and studies into the area of management and operation of our great river projects.

The Missouri River presents some extremely difficult management problems. The flow of the river is limited. There tends to be competition between upstream and downstream uses for the limited flow. This competition was recognized in 1944, and the O'Mahoney-Millikin amendment passed to preclude any arguments.

The great projects on the Missouri River are not yet completed, so there has been only partial operation up to date.

Additionally, dry weather and water shortages in recent years have complicated Missouri Basin operation.

As one consequence, there is complaint that water which should have been reserved for upper basin uses has been released for navigation in violation of the O'Mahoney-Millikin amendment to the Flood Control Act of 1944.

When I put the text of the Montana Joint Memorial in the Congressional Record March 18, I made this statement, and I quote:

> * * * conflicts between uses (for water) appear to require a choice of one use or the other as superior, but a choice between two needs is not an adequate solution. The real solution is in finding ways to meet all needs, not merely one or another of them.
>
> With an integrated development of all the resources of the Missouri Basin—including its vast lignite deposits as well as flowing water for energy—all needs could be met.
>
> I make this statement now in the hope that when hearings are held on the problem posed by the Montana and South Dakota memorials, all those involved will deal with meeting our total needs and not simply with how to ration a scarcity of water.

It remains my hope the hearings will be a constructive exploration of how best to manage existing Federal projects in the Missouri Basin, and add to them, so a maximum of all needs will be developed.

There has been called to my attention the April 17 newscast of the Missouri River Division of the Mississippi Valley Association which describes these hearings in terms of strife between water users.

It would not be realistic to deny that such strife is a potentiality. Rationing scarcity always brings strife. The long term, constructive solution is to end the scarcity. In my judgment, there is such a constructive solution to potential strife between power and navigation needs of Missouri River Basin citizens—development of lignite generation. When irrigation demands more upper basin water, there may again be a constructive solution which will save navigation—slack water instead of a flowing navigation channel. It is these constructive, long-term answers we should seek.

Through these hearings we might constructively explore the desirability of amending the Fort Peck Dam Act to create a power administration in the Missouri Basin as we have at Bonneville, and in the Southwest and Southeast. The area should have a great transmission system which will permit it to take advantage of all the economy of large generating plants—water, steam, or atomic—and from which every type of customer can draw power in abundance for rural, urban, or industrial use.

I especially deplore one sentence in the Mississippi Valley Association's newscast which reads:

> The Pick-Sloan plan was never designed for the benefit of a few upstream nationalized public power advocates.

Name calling is always inappropriate. It seems especially inappropriate for the advocate of a nonreimbursable benefit of multiple-purpose development to be derogatory of one of the paying partners.

Is is just as appropriate to call river navigation advocates "nationalized public-transportation advocates" as to use the phrase in relation to rural electric cooperatives.

Both transportation and electric-power supply are public-utility functions. The courts have held throughout our history that such utility services are functions of the State. These State functions may be performed directly by a governmental unit or through an agent; a railroad, or a power company.

In the Moffat Tunnel case, the Supreme Court held that the fact that a public-utility function was being performed by a private agent did

not affect its basic character as a function of the State, requiring powers of the State, such as eminent domain, to operate.

The Government is not only within its proper sphere in providing either adequate transportation facilities or adequate electric power for its citizens. The Government has a responsibility to see that the people have such utility services.

It is not reprehensible to advocate that the Government meet its responsibility by direct action either in the field of power or transportation, and the implication that either public power or waterways are "socialistic" is wholly unwarranted, especially if a pot starts calling a kettle black. If it is "creeping socialism," which I deny, then we are all creeping along together.

The existence of adequate, low-cost service, whether it be navigation or energy supply, is always a stimulus to the economy of an area.

In the Lower Missouri Basin, and the Mississippi Valley, low-cost transportation, navigation, is linked with economic development in people's minds. In the upper basin, where there is little or no prospect of navigation, irrigation and abundant low-cost energy spell economic development to people's minds.

Both areas properly look to the Federal Government for optimum development of the resource with greatest meaning to them. If the propriety of the Federal Government providing a utility service is to be debated, then it should be cast as a debate over whether we shall have Federal service, or leave the jobs to private companies in both the power and transportation fields.

If the proponents of navigation insist that a choice must be made between power and navigation use of water, and press the contention that, and I quote:

> Power was never considered more than an incidental benefit * * *

I shall, of course, vigorously join those who stand on the statutes which give priority to upper basin uses.

Contrary to assertions in the association's newscast, the Flood Control Act of 1944 not only contained the O'Mahoney-Millikin amendment to protect western uses, it was enacted for the purpose of putting a checkrein on navigation.

The language which immediately follows the enacting clause includes among the stated purposes of the bill this language:

> * * * and to limit the authorization and construction of navigation works to those in which a substantial benefit to navigation will be realized therefrom and which can be operated consistently with appropriate and economic use of the waters of such rivers by other users.

We have present to participate in these hearings representatives of rural electric cooperative groups, States, municipalities, chambers of commerce, the Mississippi Valley Association and its Missouri Basin division, and individual citizens.

Also present are representatives of the Corps of the United States Army Engineers and of the Bureau of Reclamation. Representing the corps are: Brig. Gen. John L. Person, who is General Itschner's deputy here in Washington, and Maj. Gen. Gerald Galloway, in charge of the Missouri River division.

Representatives of the Bureau of Reclamation are James C. Bradley, general engineer, Office of the Assistant Secretary for Water and

Power, and D. S. Campbell, Chief, Division of Power, Bureau of Reclamation.

These gentlemen are prepared to answer questions for the committee, if called upon, but they are not scheduled to testify at this time. They may be called later, after we have studied the testimony presented today and tomorrow, if it is desirable.

I have obtained from both the corps and the Bureau of Reclamation certain basic data on water release, power generation, freight movement and river-reservoir operations for the use of the committee, which I present for the hearing record.

The data includes the monthly operating reports of both Army and Bureau of Reclamation generating stations on the Missouri and tributaries from April 1954 through March 1957. These are quite extensive and will not be printed in the hearings but will be available in the committee files. All other material from the Corps of Engineers and the Bureau will be included in the record, however, at this point, if there is no objection.

(The material referred to follows:)

APRIL 8, 1957.

Maj. Gen. EMERSON C. ITSCHNER,
Chief of Engineers, United States Army,
Department of Defense, Washington, D. C.

DEAR GENERAL ITSCHNER: There has been transmitted to Congress joint resolutions of the Montana and South Dakota Legislatures which, in effect, allege violation of the letter and spirit of the O'Mahoney-Millikin amendment as a result of release, in recent years, of upper Missouri Basin water for navigation; mismanagement of power generation and distribution, and consequent impending power shortage in the area.

Pursuant to these legislative memorials, the Interior and Insular Affairs Committee will hold hearings May 1 and 2, to hear witnesses from the upper Missouri Basin States. We would appreciate your having present at those hearings representatives qualified to answer questions of committee members. Will you please supply us, by April 25, the following material?

1. Reports for the last 5 years for all Missouri Basin Engineers projects, showing water storage and releases, including water released which produced power, the amount of power produced by such water, the amount of water released which did not produce power, and the amount of power which could have been produced from such water had it not been released.

2. Ton miles of freight hauled either way since April 1954 broken down by various types of freight, by months, and to indicate commercial as contrasted with movement arising from river work, between the following cities:

(*a*) St. Louis and Kansas City.
(*b*) Kansas City and Omaha.
(*c*) Omaha and Sioux City.

3. Operations and maintenance charges for navigation projects in the Missouri Basin.

4. Estimated savings to shippers resulting from the use of navigation projects in the Missouri Basin, broken down between commercial freight and movement related to Government projects.

5. Monthly operating reports for Corps of Engineers generating plants on the Missouri River and its tributaries, beginning with April 1954.

6. Original allocation of cost with respect to Corps of Engineers projects in the Missouri Basin and any subsequent changes.

We will greatly appreciate your cooperation.

Sincerely yours,

JAMES E. MURRAY, *Chairman.*

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D. C., April 24, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: Further reference is made to your letter of April 8, 1957, relative to hearings to be held on May 1 and 2 to hear witnesses from the upper Missouri Basin States regarding the operation of reservoir projects in the Missouri River Basin.

The information and material requested are inclosed herewith by numbered items as listed in your letter of April 8, 1957.

Sincerely yours,

J. L. PERSON,
Brigadier General, USA,
Assistant Chief of Engineers for Civil Works.

1. *Reports for the last 5 years for all Missouri Basin Engineers projects, showing water storage and releases, including water released which produced power, the amount of power produced by such water, the amount of water released which did not produce power, and the amount of power which could have been produced from such water had it not been released.*

Presented in table 1, by projects and system totals, are the following data for the 5-year period from January 1, 1952, to December 31, 1956: (*a*) year-end storages, (*b*) releases through the powerplants, (*c*) other releases, (*d*) total releases, (*e*) year-end installed capacities, (*f*) actual marketable power generated (including plant use), (*g*) amounts of power which could have been produced if water had not been released to serve navigation, including firm and nonfirm, and (*h*) total power.

In estimating the additional power which might have been generated during the 5-year period, without service to navigation, it has been assumed that operations would be scheduled so as to provide the maximum power consistent with the following limitations: (*a*) power units available for service, (*b*) water availability, (*c*) construction limitations on fill of new reservoirs, and (*d*) available transmission capacity and market as estimated by the marketing agent, the Bureau of Reclamation.

Under this type of operation the Fort Peck Reservoir would have remained in its normal range of operation through the period, rising each year above the base of flood control during the high water season and then dropping back to this level during the low water season. It would have been necessary to make releases in addition to those utilized for power generation in all 5 years in order to avoid encroachment on flood control space.

Limitations imposed by the status of construction at Garrison would have been controlling on the rate of fill from the time of closure of the dam in 1953 through 1955. This would have necessitated large volumes of nonpower releases in the first 4 years of the study. In 1956 the storage available would have permitted operation with a much smaller volume of nonpower releases, however, this type of operation would have severely curtailed generation at the Fort Randall plant. Therefore limited additional nonpower releases were assumed for that year also.

Storage limitations of the system and the status of power units available for generation would have required large nonpower releases at Fort Randall during the first 2 years of the period, with only limited additional nonpower releases in the third year. In the last 2 years all releases could have been utilized for power generation. Construction status would be controlling on the rate of initial fill of the reservoir, as it was in actual operations.

Operation of the Gavins Point Reservoir from the standpoint of storage would not have been materially different than actual operations, with the release pattern closely paralleling that of Fort Randall.

Missouri River main stem reservoir system operation data

	Fort Peck	Garrison	Fort Randall [1]	Gavins Point	System total
1953					
Storage in 1,000 acre-feet on Dec. 31	13,076	(2)	(2)	(2)	13,076
Release in 1,000 acre-feet:					
Through powerplant	3,624	(2)	(2)	(2)	
Other	3,391	(2)	(2)	(2)	
Total	7,015	(2)	(2)	(2)	
Installed capacity Dec. 31, 1,000 kilowatts	85	0	0	0	85
Marketable power million kilowatt-hours:					
Actual	610	0	0	0	610
Additional:					
Firm	0	0	0	0	0
Nonfirm	0	0	0	0	0
Total additional	0	0	0	0	0
Total power	610	0	0	0	610
1953					
Storage in 1,000 acre-feet on Dec. 31	12,738	150	1,307	(2)	14,195
Release in 1,000 acre-feet:					
Through powerplant	3,666	(2)	0	(2)	
Other	4,236	(2)	19,150	(2)	
Total	7,902	(2)	19,150	(2)	
Installed capacity Dec. 31, 1,000 kilowatts	85	0	0	0	85
Marketable power million kilowatt-hour:					
Actual	621	0	0	0	621
Additional:					
Firm	0	0	0	0	0
Nonfirm	0	0	0	0	0
Total additional	0	0	0	0	0
Total power	621	0	0	0	621
1954					
Storage in 1,000 acre-feet on Dec. 31	10,004	1,474	3,122	(2)	14,600
Release in 1,000 acre-feet:					
Through powerplant	3,265	0	3,635	(2)	
Other	4,539	14,970	9,851	(2)	
Total	7,804	14,970	13,486	(2)	
Installed capacity, Dec. 31, 1,000 kilowatts	85	0	160	0	245
Marketable power million kilowatt-hours:					
Actual	524	0	293	0	817
Additional:					
Firm	0	0	0	0	0
Nonfirm	14	0	139	0	153
Total additional	14	0	139	0	153
Total power	538	0	432	0	970
1955					
Storage in 1,000 acre-feet on Dec. 31	5,307	5,029	3,030	(2)	13,366
Release in 1,000 acre-feet:					
Through powerplant	3,833	0	9,446	(2)	
Other	5,878	14,506	4,978	(2)	
Total	9,711	14,506	14,424	(2)	
Installed capacity, Dec. 31, 1,000 kilowatts	85	0	280	0	365

See footnotes at end of table.

Missouri River main stem reservoir system operation data—Continued

	Fort Peck	Garrison	Fort Randall [1]	Gavins Point	System total
1955—Continued					
Marketable power, million kilowatt-hours: Actual	547	0	857	0	1,404
Additional: Firm	0	0	133	0	133
Nonfirm	60	0	74	0	134
Total additional	60	0	207	0	267
Total power	607	0	1,064	0	1,671
1956					
Storage in 1,000 acre-feet on Dec. 31	6,131	5,485	1,966	426	14,008
Release in 1,000 acre-feet: Through powerplant	3,959	6,346	13,562	2,171	----------
Other	485	7,249	1,312	14,206	----------
Total	4,444	13,595	14,874	16,377	----------
Installed capacity Dec. 31, 1,000 kilowatts	85	240	320	67	712
Marketable power, million kilowatt-hours: Actual	460	539	1,202	76	2,277
Additional: Firm	(3)	(3)	(3)	(3)	322
Nonfirm	(3)	(3)	(3)	(3)	437
Total additional	290	327	100	42	759
Total power	750	866	1,302	118	3,036

[1] First power unit available for generation on Mar. 15, 1956.
[2] Not available.
[3] Interconnected operation. Firm and nonfirm have not been allocated back to plants.

2. Ton-miles of freight hauled either way since April 1954 broken down by various types of freight, by months, and to indicate commercial as contrasted with movement arising from river work, between the following cities:

(a) St. Louis and Kansas City.
(b) Kansas City and Omaha.
(c) Omaha and Sioux City.

The attached tables show the tonnage and ton-miles of commercial traffic, sand and gravel movement, and waterway improvement material movement, by months, for calendar years 1954, 1955, and 1956. These data were extracted from records assembled for the commercial statistics by the Mississippi Valley-gulf coast regional statistical office. The official annual records for 1954 and 1955 are published in Waterborne Commerce of the United States, part 2. The statistics for 1956 are tentative in that the final figures have not been published to date. It will be noted that the reaches covered are:

Mouth to Kansas City: Mile 0 to mile 386
Kansas City to Omaha: Mile 387 to mile 634
Omaha to Sioux City: Mile 635 to mile 762

There is also attached hereto a table showing river freight by commodities for calendar years 1954 and 1955 and the preliminary listing by commodities for 1956.

The commercial freight includes those materials shipped on the river by private shippers. Sand and gravel tonnages include material taken from the bed of the river and transported to shore stockpiles for future commercial use; this material usually moves only short distances. The waterway-improvement materials are principally rock for placement in bank-protection structures. This classification also includes piling, cables, and other material used in this work when transported to the site of the work by barge.

It will be noted on the tabulation of tonnages and ton-miles that, where the tonnage moves through more than one reach, it is included in the total for each reach. Thus, most of the commercial tonnage in the Kansas City-to-Omaha

reach, except for minor local movement, is also included in the mouth-to-Kansas City reach. However, the ton-mile figures are limited to the miles moved by the tonnage in that particular reach.

Freight traffic on Missouri River

MOUTH TO KANSAS CITY

	Commercial		Sand, gravel, and crushed rock		Waterway-improvement materials	
	Tons	Ton-miles	Tons	Ton-miles	Tons	Ton-miles
1954—January					50	3,350
February			3,000	3,000	21,357	224,596
March			2,450	2,450	116,438	994,514
April	13,502	5,099,494	5,500	5,500	119,391	1,053,958
May	27,440	10,456,310	5,400	10,000	67,804	636,439
June	25,782	9,794,724	3,300	3,300	77,264	662,940
July	68,937	22,643,869	2,100	2,100	41,099	565,075
August	53,439	19,667,218	6,110	6,110	69,957	745,051
September	43,217	15,745,632	4,270	4,270	111,442	799,565
October	56,186	21,121,512	2,310	4,620	117,114	1,065,769
November	8,646	3,082,822	1,400	2,800	102,661	1,072,530
December			2,200	4,400	65,369	530,032
Total	297,149	107,611,581	38,040	48,550	909,946	8,353,819
1955—January			910	1,820	24,892	172,718
February			345	690	5,529	88,153
March	8,918	3,372,476	2,175	3,375	73,230	716,954
April	45,722	16,949,205	5,200	5,200	83,648	1,473,320
May	63,883	22,114,716	8,200	14,450	83,761	1,553,128
June	67,909	24,029,620	4,500	7,200	62,609	918,123
July	83,704	30,389,188	3,000	5,400	31,805	528,076
August	27,728	9,970,516	55,530	58,655	46,854	699,552
September	53,016	18,536,017	48,920	51,670	89,623	798,366
October	69,914	25,558,194	43,950	46,200	84,377	545,897
November	10,297	2,464,147	10,345	13,970	56,536	257,747
December	4,364	80,282	4,420	8,840	11,618	18,337
Total	435,455	153,464,361	187,495	217,470	654,682	7,750,471
1956—January			2,450	4,400	9,925	18,141
February			1,885	1,885	27,629	136,435
March			45,935	45,935	96,569	625,469
April	37,908	13,104,498	67,950	67,950	100,901	914,522
May	48,971	17,916,612	67,320	67,320	112,460	1,269,402
June	43,339	15,917,757	50,000	50,000	103,089	1,130,503
July	42,856	15,968,553	32,550	32,550	61,407	799,383
August	51,135	17,739,414	98,185	122,030	111,987	589,996
September	48,602	17,167,639	41,205	50,005	79,183	411,774
October	35,516	12,663,743	101,090	108,890	143,986	725,484
November			25,765	25,765	70,744	340,348
December			31,590	37,390	53,987	244,145
Total	308,327	110,478,216	565,925	614,120	971,867	7,205,602

KANSAS CITY TO OMAHA

1954—January						
February					8,461	45,671
March			4,780	10,300	72,629	475,513
April	924	131,880	3,720	9,400	124,491	1,613,122
May	11,143	461,495	3,300	8,400	122,728	1,367,669
June	7,491	1,835,295	11,800	15,400	102,053	1,902,827
July	21,532	2,249,342	105,550	960,750	93,064	2,432,716
August	14,963	1,841,396	20,350	244,200	143,738	1,949,879
September	14,385	3,014,040	29,605	224,180	150,492	1,994,003
October	27,869	4,081,354	22,350	191,500	152,794	1,504,541
November	2,096	402,432	26,000	260,000	82,927	610,110
December			2,485	3,730	68,448	421,255
Total	100,403	14,017,234	229,940	1,927,860	1,121,825	14,317,306

Freight traffic on Missouri River—Continued

KANSAS CITY TO OMAHA—Continued

	Commercial		Sand, gravel, and crushed rock		Waterway-improvement materials	
	Tons	Ton-miles	Tons	Ton-miles	Tons	Ton-miles
1955—January			4,890	12,270		
February						
March	6,972	23,022			14,973	180,729
April	12,181	782,616	55,335	363,740	70,211	823,519
May	23,474	4,388,391	6,000	72,000	132,452	1,368,409
June	21,587	3,453,779	48,615	295,555	159,225	1,803,663
July	18,374	2,809,714	21,700	238,700	108,890	1,551,711
August	6,371	1,394,795	38,865	354,480	124,244	1,168,818
September	19,395	3,665,444	23,600	236,000	196,227	2,285,424
October	20,654	3,420,497	27,025	268,120	162,919	1,729,463
November	750	183,750			58,534	390,287
December					117,258	1,074,009
Total	129,758	20,122,008	226,030	1,840,865	1,144,933	12,376,032
1956—January					13,913	44,821
February					25,863	131,752
March			11,145	115,325	71,150	662,770
April	5,167	492,150	21,700	246,000	201,542	1,468,412
May	12,872	1,329,023	27,075	287,475	180,861	1,849,408
June	16,353	902,591	23,500	305,500	130,133	1,820,740
July	11,321	453,015	27,343	295,793	85,440	1,418,549
August	4,650	333,694	32,750	68,125	105,482	2,186,065
September	29,567	59,134	27,850	234,450	170,163	2,610,899
October	11,988	26,486	45,250	298,450	200,520	2,118,238
November					166,065	768,709
December			9,355	9,355	197,700	3,480,475
Total	91,918	3,596,093	225,968	1,860,473	1,548,832	18,560,838

OMAHA TO SIOUX CITY

1954—January						
February						
March					374	3,366
April					937	46,501
May					11,709	147,030
June					6,358	69,594
July					1,756	111,004
August					1,843	20,965
September					24,679	328,044
October					7,237	149,258
November					1,129	5,645
December					20,240	164,240
Total					76,262	1,045,647
1955—January						
February						
March					555	37,425
April					33,585	186,719
May					59,395	134,551
June					40,096	81,407
July					49,986	108,183
August					58,269	242,381
September					91,998	604,886
October					73,685	289,802
November					25,791	107,989
December						
Total					433,360	1,793,343
1956—January						
February						
March					16,695	47,820
April					96,311	319,988
May					127,744	391,135
June					46,816	199,289
July					31,924	101,053
August					33,958	144,615
September					44,983	686,566
October					103,007	299,131
November					51,649	113,119
December					129,680	433,300
Total					682,767	2,736,016

Freight traffic, by commodities

[Tons]

Commodity code	Commodity	1954	1955	1956 [1]
100	Corn	14,585	12,689	8,430
103	Wheat	82,289	90,157	114,963
107	Wheat flour and semolina			757
108	Other grains	13,402	1,490	6,598
110	Animal feeds, not elsewhere classified		794	840
160	Coffee, raw or green	910		
180	Sugar	3,056	1,739	509
200	Rubber, crude, and allied gums		67	
231	Soybeans	1,504	14,305	5,152
290	Molasses, inedible	61,996	74,657	10,348
300	Cotton, unmanufactured	50		
310	Cotton semimanufactures	50		
331	Burlap and jute bagging	335	488	388
335	Vegetable fiber manufactures, not elsewhere classified	1,371	2,455	
400	Logs			140
401	Rafted logs	9,175	11,135	10,345
405	Posts, poles, and piling		70	
408	Wood manufacturing, not elsewhere classified			17
502	Coal			5,613
505	Motor fuel and gasoline	19,471		26,302
514	Residual fuel oil	5,252		
520	Petroleum products, not elsewhere classified	11,841	6,451	54,090
551	Limestone, crushed		3,997	
554	Sand, gravel, crushed rock	267,980	413,525	791,893
601	Pig iron		8,234	
602	Iron and steep scrap	1,172	750	500
603	Iron, steel semifinished products	790	10,706	266
604	Rolled, finished steel mill products	96,164	165,417	46,778
605	Ferrous castings and forgings		3,701	1,700
606	Tools and basic hardware	270		
612	Metal manufactures and parts, not elsewhere classified	200	23,394	20,391
722	Construction, mining machinery, parts	676	210	865
742	Industrial machines			125
780	Motor vehicles	10		
783	Watercraft and parts	2,520		
800	Coal tar products		1,106	1,022
829	Industrial chemicals, not elsewhere classified	60	500	20
850	Nitrogenous fertilizer materials			20
859	Fertilizer and materials, not elsewhere classified		939	
900	Commodities, not elsewhere classified		4	
970	Waterway improvement materials	2,112,196	2,290,732	3,203,486
	Total	2,677,325	3,139,712	4,311,558

[1] Preliminary figures.

3. *Operations and maintenance charges for navigation projects in the Missouri Basin.*

In the Missouri Basin, projects which benefit navigation include the bank stabilization and navigation project from Sioux City to the mouth, and the Fort Peck, Garrison, Fort Randall, and Gavins Point Reservoirs on the Missouri River upstream from Sioux City.

The total operation and maintenance costs for the bank-stabilization and navigation project, by fiscal years, have been as follows:

1954	$7,032,551
1955	6,371,245
1956	6,238,480
First half 1957	3,302,600

However, only a portion of these costs are chargeable to navigation, the remaining benefits method showed that 65.12 percent of the maintenance costs A cost allocation study of the project made in 1955 using the separable costs-remaining benefits method showed that 65.12 percent of the maintenance costs of the project were allowable to bank stabilization and 34.88 percent were allowable to navigation. This latter percentage has been used in estimating the portion of the above operation and maintenance costs chargeable to navigation.

The maintenance and operation costs of the main stem reservoirs chargeable to navigation, shown below, are directly from the district comptroller's records. For the Fort Peck project this is on the premise of the Federal Power Commission allocation of only specific costs to power with the other functions carrying the entire joint costs.

On the basis of the above, the operation and maintenance charges to navigation are shown in the following table:

Navigation operation and maintenance

	Fiscal years			
	1954	1955	1956	1st half 1957
Channel work	$2,452,900	$2,222,300	$2,176,000	$1,151,900
Reservoirs	125,151	139,062	250,011	119,717
Total	2,578,051	2,461,362	2,426,011	1,271,617

4. *Estimated savings to shippers resulting from the use of navigation projects in the Missouri Basin, broken down between commercial freight and movement related to Government projects.*

Estimated savings shown in the following table were based on river freight shown in the response to request 2.

The savings for commercial tonnage on the Missouri River were estimated in the Missouri River division office based on the average savings per ton of commercial commerce derived from a complete study of navigation benefits made in 1950, during which nearly 1,500 firms who were potential users of the waterway were contacted relative to current tonnages of various types of commerce adaptable to waterway shipment, and origin and destination. To derive the savings in shipping costs or benefits, commercial services were used to determine rail rates for the movements which were compared to estimated waterway rates. Only that tonnage which showed substantial savings was included. On the basis of this study it was determined that 5 million tons of waterway commerce annually would probably develop within a reasonable period after completion of a dependable 9-foot channel. Total annual savings, credited to the Missouri River navigation projects for this movement, were estimated to be $15 million. The average unit savings per ton from this 1950 study, indexed to current economic levels, amount to $3.06 per ton; and this unit value has been applied to the commercial freight movement in 1954, 1955, and 1956 to estimate savings to shippers in these years.

The savings attributed to the barge movement of waterway improvement materials (principally rock) are the estimated savings between the cost of barge movement as compared to truck haul. The rock is normally placed in the stablization structure directly from the barge but in most cases this is not possible with trucks, and rehandling of the rock is required. Rock can be transported from quarries to the locations required by direct barge, by truck haul, or by a combination of barge, truck and rail haul dependent upon the location of quarries in relation to the location of the work. The cost per ton-mile for hauling varies with the conditions involved. Experience with contracts for such work has shown savings by barge haul as compared to truck haul amount to from as little as 2 cents per ton-mile to over 8 cents per ton-mile. Approximate savings have been estimated as 5 cents per ton-mile in the section of the river from Kansas City to the mouth, 4¼ cents per ton-mile Omaha to Kansas City, and 3½ cents per ton-mile Omaha to Sioux City. These savings are for transport costs and do not include placement costs, which would be higher for truck haul.

The estimated savings for barge movement of sand and gravel cannot be readily obtained by comparison of barge movement costs to truck movement costs, since the predominant method of operation along the Missouri River involves barge movement from sources in the river to nearby loading piles. In the absence of comparable cost figures between barge and truck movement for producing sand and gravel, the estimated savings have been computed using the same unit ton-mile savings used for waterway improvement materials. Attention is invited to the fact that no allowance is made for the additional costs that would be involved were it necessary to utilize the sand and gravel producing areas im-

mediately adjacent to suitable land facilities in lieu of utilizing the most productive location of suitable material.

The savings by calendar years for the various types of movement on the Missouri River described above are as follows:

	1954	1955	1956
Commercial freight	$908,000	$1,330,000	$954,000
Sand and gravel	84,362	89,111	109,776
Waterway improvement material	1,062,775	976,272	1,244,877
Total	2,055,137	2,395,383	2,308,865

In addition to the above, the operation of the main stem reservoirs for navigation is of considerable benefit on the Mississippi River between the mouth of the Ohio River and Alton, Ill., during the late summer and early fall of dry years such as 1955 and 1956, when natural flows are frequently at low levels. The benefits along the Mississippi River directly creditable to the supplementation of low flows by releases from the Missouri River main stem reservoirs result from the loadings to greater drafts made possible by the increased channel depths, and reductions in dredging and other channel work. The actual Mississippi River savings creditable to Missouri River reservoir releases for navigation during 1955 and 1956 are shown below:

	1955	1956
Commercial shippers	$1,777,000	$1,753,000
Savings in channel work	415,000	631,000
Total	2,192,000	2,384,000

Thus the grand total navigation benefits resulting from operation of the Missouri River reservoirs and improvement of channel conditions on the Missouri are:

	1954	1955	1956
Navigation savings	$2,055,137	$4,587,383	$4,692,865

(Item 5, monthly operating reports of engineer projects, is available in the files of the Interior and Insular Affairs Committee.)

6. *Original allocation of cost with respect to Corps of Engineers projects in the Missouri Basin and any subsequent changes.*

The first official cost allocation of Missouri Basin projects of the Corps was made by the Federal Power Commission for the Fort Peck project in April 1943. This allocation was made pursuant to Public Law 529, 75th Congress, which authorized installation of power in the Fort Peck project and assigned the responsibility of allocation of cost to the Federal Power Commission. In their order (Docket No. IT 5770, April 20, 1943) the Commission found that circumstances at that time made it impracticable to make an allocation of joint costs to power, and found that for the time being only specific costs to power, at that time amounting to $5,411,000, should be charged to power; specifically reserving the right to reconsider the matter relative to appropriate allocation of joint costs to power. Subsequent to this data, official records for the Fort Peck project have limited the allocation of costs to power to the costs of facilities solely for power purposes. As of June 30, 1956, actual costs of facilities at Fort Peck are allocated as follows:

Allocated to power	$15,798,991
Allocated to other functions	117,175,748
Actual total cost June 30, 1956	132,974,739

In the preliminary allocation studies summarized in the following sheets for all the reserviors in the Mississippi River main stem system, power is assumed to share an appropriate portion of the joint costs as determined by the operation studies and method of allocation used. The various allocations are identified in the following descriptions and on the accompanying tabulations by the dates of the studies.

January 1950: This was an exploratory allocation of construction costs of Corps of Engineers reservoir projects on the main stem of the Missouri River, based on a tentative analysis of the use of facilities under ultimate conditions of basic development and operation.

June 1950: This was an exploratory modification of the preceding analysis, of construction costs of Corps of Engineers reservoir projects on the main stem of the Missouri River, based on a tentative analysis of use of facilities for the period 1960–2010 assuming ultimate conditions of basin development and operation by 1985.

September 1951: The previous allocation study was revised to take into account current estimates of cost and revisions in specific costs of facilities. The revised exploratory allocations were based on the use of facilities method.

October 1952: A report on preliminary cost allocation studies Missouri River main stem reservoirs dated October 1952 presented studies based on use of facilities, alternate justifiable investment, separable costs-remaining benefits, and incremental methods. Using the results of these studies as a guide, a tentative allocation of first cost was selected.

March 1953: In a revision of the October 1952 report completed in March 1953 an allocation, based entirely on the separable cost-remaining benefit method was selected as appropriate. This is the first of the main stem cost allocations derived solely by the separable costs-remaining benefits method. All subsequent allocations also are based on the separable costs-remaining benefits method.

September 1953: The allocation of March 1953 was recomputed on the basis of revised estimates of cost, on 1953 price levels.

September 1954: A new allocation study was prepared based on 1954 price levels, with some refinement in data.

January 1956: The tentative allocations made in September 1954 were modified in January 1956 to reflect the change in price level to July 1955 revisions in cost estimates to reflect actual costs of construction.

September 1956: A tentative allocation on 1954 price levels was prepared in September 1956 based primarily on the September 1954 allocation with respect to total costs and conditions but modified with respect to omission of navigation as a purpose of the Gavins Point Reservoir.

January 1957: A revision of the January 1956 allocation to reflect estimates on July 1956 price levels was made.

With special reference to the costs allocated to power, it will be noted that in general there has been an increase through the whole series of allocations. This results principally from increasing sizes of power installations and general price level increases which have increased the costs of the projects. It will also be noted that by January 1957 the specific power costs (which serve no other purpose) amount to 42.1 percent of the total costs of the main stem projects. This large investment in power facilities and equipment is a very important factor in the 63.6 percent of total project costs being allocated to power.

With reference to all of the cost allocations for the main stem system, it is to be specially noted that these are the results of a series of exploratory and preliminary studies, and that no final cost allocation for the Missouri River main stem reservoirs has yet been adopted by the Chief of Engineers. These preliminary allocations have all been made by the Missouri River division office of the Corps of Engineers, with some consultation with regional offices of the Bureau of Reclamation and Federal Power Commission, particularly since 1952. At the present time a very thorough allocation study, which was initiated in 1956, is under way with active collaboration and participation of the Bureau and Commission.

Missouri River main-stem reservoirs—Allocation of first costs

[In thousands of dollars]

JANUARY 1950

	Flood control	Power		Navigation	Irrigation	Recreation	Total
		Installation (kilowatt)	Costs				
Fort Peck		85,000					
Specific costs	0		$17,900	0	0	$1,500	$19,400
Share of joint costs	$17,625		$41,125	$23,500	$35,250	0	117,500
Total	17,625		59,025	23,500	35,250	1,500	136,900
Garrison		400,000					
Specific costs	4,750		61,550	0	0	1,250	67,550
Share of joint costs	23,205		54,145	30,940	46,410	0	154,700
Total	27,955		115,695	30,940	46,410	1,250	222,250
Oahe		425,000					
Specific costs	8,800		71,300	0	0	800	80,900
Share of joint costs	26,595		62,055	35,460	53,190	0	177,300
Total	35,395		133,355	35,460	53,190	800	258,200
Big Bend		120,000					
Specific costs	0		42,824	0	0	200	43,024
Share of joint costs	0		0	0	0	0	0
Total	0		42,824	0	0	200	43,024
Fort Randall		320,000					
Specific costs	2,000		64,000	0	0	1,140	67,140
Share of joint costs	17,985		41,965	23,980	35,970	0	119,900
Total	19,985		105,965	23,980	35,970	1,140	187,040
Gavins Point		100,000					
Specific costs	0		17,400	0	0	1,000	18,400
Share of joint costs	6,840		18,485	0	0	0	25,325
Total	6,840		35,885	0	0	1,000	43,725
System		1,450,000					
Specific costs	15,550		274,974	0	0	5,890	296,414
Share of joint costs	92,250		217,775	113,880	170,820	0	594,725
Total	107,800		492,749	113,880	170,820	5,890	891,139

JUNE 1950

Fort Peck		85,000					
Specific costs	0		$17,900	0	0	$1,500	$19,400
Share of joint costs	$17,625		41,125	$29,375	$29,375	0	117,500
Total	17,625		59,025	29,375	29,375	1,500	136,900
Garrison		400,000					
Specific costs	4,750		61,550	0	0	1,250	67,550
Share of joint costs	23,205		54,145	38,675	38,675	0	154,700
Total	27,955		115,695	38,675	38,675	1,250	222,250
Oahe		425,000					
Specific costs	8,800		71,300	0	0	800	80,900
Share of joint costs	26,595		62,055	44,325	44,325	0	177,300
Total	35,395		133,355	44,325	44,325	800	258,200
Big Bend		120,000					
Specific costs	0		42,824	0	0	200	43,024
Share of joint costs	0		0	0	0	0	0
Total	0		42,824	0	0	200	43,024

***Missouri River main-stem reservoirs—Allocation of first costs*—Continued**

[In thousands of dollars]

JUNE 1950—Continued

	Flood control	Power		Navigation	Irrigation	Recreation	Total
		Installation (kilowatt)	Costs				
Fort Randall		320,000					
Specific costs	$2,000		$64,000	0	0	$1,140	$67,140
Share of joint costs	17,985		41,965	$29,975	$29,975	0	119,900
Total	19,985		105,965	29,975	29,975	1,140	187,040
Gavins Point		100,000					
Specific costs	0		17,400	0	0	1,000	18,400
Share of joint costs	6,840		18,485	0	0	0	25,325
Total	6,840		35,885	0	0	1,000	43,725
System		1,450,000					
Specific costs	15,550		274,974	0	0	5,890	296,414
Share of joint costs	92,250		217,775	142,350	142,350	0	594,725
Total	107,800		492,749	142,350	142,350	5,890	891,139

SEPTEMBER 1951

Fort Peck		165,000					
Specified costs	0		$35,267.6	0	0	$950	$36,217.6
Share of joint costs	$18,182.4		42,200	$30,150	$30,150	0	120,682.4
Total	18,182.4		77,467.6	30,150	30,150	950	156,900
Garrison		400,000					
Specific costs	3,750		51,300	0	0	719	55,769
Share of joint costs	35,625		83,200	59,500	59,500	0	237,826
Total	39,376		134,500	59,500	59,500	719	293,595
Oahe		425,000					
Specific costs	10,000		114,625	0	0	800	125,425
Share of joint costs	28,875		67,200	48,000	48,000	0	192,075
Total	38,875		181,825	48,000	48,000	800	317,500
Big Bend		120,000					
Specific costs	0		49,300	0	0	200	49,500
Share of joint costs	0		0	0	0	0	0
Total	0		49,300	0	0	200	49,500
Fort Randall		320,000					
Specific costs	3,000		61,800	0	0	1,000	65,800
Share of joint costs	19,700		46,000	32,900	32,900	0	131,500
Total	22,700		107,800	32,900	32,900	1,000	197,300
Gavins Point		100,000					
Specific costs	0		31,444	0	0	750	32,194
Share of joint costs	7,830		21,150	0	0	0	28,980
Total	7,830		52,594	0	0	750	61,174
System		1,530,000					
Specific costs	16,750.		343,736.6	0	0	4,419	364,905.6
Share of joint costs	110,213.4		259,750	170,550	170,550	0	711,063.4
Total	126,963.4		603,486.6	170,550	170,550	4,419	1,075,969

Missouri River main-stem reservoirs—Allocation of first costs—Continued

[In thousands of dollars]

OCTOBER 1952

	Flood control	Power		Navigation	Irrigation	Recreation	Total
		Installation (kilowatt)	Costs				
Fort Peck		165,000					
Specific costs	$700		$37,370	0	0	$380	$38,450
Share of joint costs	20,833.7		44,830	$23,100	$29,400	0	118,183.7
Total	21,533.7		82,200	23,100	29,400	380	156,633.7
Garrison		400,000					
Specific costs	3,120		76,460	0	0	790	80,370
Share of joint costs	40,084		84,800	43,800	56,000	0	224,684
Total	43,204		161,260	43,800	56,000	790	305,054
Oahe		425,000					
Specific costs	2,930		99,400	0	0	680	103,010
Share of joint costs	39,560		84,300	44,000	55,900	0	223,760
Total	42,490		183,700	44,000	55,900	680	326,770
Big Bend		120,000					
Specific costs	0		65,500	0	0	500	66,000
Share of joint costs	0		0	0	0	0	0
Total	0		65,500	0	0	500	66,000
Fort Randall		320,000					
Specific costs	3,100		66,900	0	0	200	70,200
Share of joint costs	22,785		48,300	25,200	32,000	0	128,285
Total	25,885		115,200	25,200	32,000	200	198,485
Gavins Point		100,000					
Specific costs	0		25,521	0	0	500	30,021
Share of joint costs	9,499		24,535	0	0	0	30,034
Total	9,499		50,056	0	0	500	60,055
System		1,530,000					
Specific costs	9,850		371,151	0	0	3,050	384,051
Share of joint costs	132,781.7		286,765	136,100	173,300	0	728,946.7
Total	142,631.7		657,916	136,100	173,300	3,050	1,112,997.7

MARCH 1953

Fort Peck		165,000					
Specific costs	$700		$38,111	0	0	$453	$39,264
Share of joint costs	26,474		53,728	$17,293	$19,875	0	117,379
Total	27,174		91,839	17,293	19,875	453	156,634
Garrison		400,000					
Specific costs	3,120		76,460	0	0	790	80,370
Share of joint costs	61,915		92,398	32,739	37,628	0	224,684
Total	65,035		168,862	32,739	37,628	790	305,054
Oahe		425,000					
Specific costs	3,505		108,744	0	0	0	112,249
Share of joint costs	49,584		81,828	38,667	44,442	0	214,521
Total	53,089		190,572	38,667	44,442	0	326,770
Big Bend		120,000					
Specific costs	0		65,500	0	0	500	66,000
Share of joint costs	0		0	0	0	0	0
Total	0		65,500	0	0	500	66,000

Missouri River main-stem reservoirs—Allocation of first costs—Continued

[In thousands of dollars]

MARCH 1953—Continued

	Flood control	Power		Navigation	Irrigation	Recreation	Total
		Installation (kilowatt)	Costs				
Fort Randall		320,000					
Specific costs	$3,204		$79,100	0	0	$361	$82,665
Share of joint costs	34,409		43,434	$17,669	$20,308	0	115,820
Total	37,613		122,534	17,669	20,308	361	198,485
Gavins Point		100,000					
Specific costs	0		32,365	0	0	0	32,365
Share of joint costs	7,603		20,087	0	0	0	27,690
Total	7,603		52,452	0	0	0	60,055
System		1,530,000					
Specific costs	10,529		400,280	0	0	2,104	412,913
Share of joint costs	179,985		291,479	106,368	122,253	0	700,085
Total	190,514		691,759	106,368	122,253	2,104	1,112,998

SEPTEMBER 1953

Fort Peck		165,000					
Specific costs	$700		$38,837	0	0	$454	$39,991
Share of joint costs	26,609		53,460	$17,379	$19,974	0	117,422
Total	27,309		92,297	17,379	19,974	454	157,413
Garrison		400,000					
Specific costs	3,120		75,397	0	0	776	79,293
Share of joint costs	62,080		93,895	32,822	37,724	0	226,521
Total	65,200		169,292	32,822	37,724	776	305,814
Oahe		425,000					
Specific costs	3,680		112,893	0	0	0	116,573
Share of joint costs	51,623		85,628	40,280	46,296	0	223,827
Total	55,303		198,521	40,280	46,296	0	340,400
Big Bend		120,000					
Specific costs	0		68,775	0	0	0	68,775
Share of joint costs	0		0	0	0	0	0
Total	0		68,775	0	0	0	68,775
Fort Randall		320,000					
Specific costs	3,204		78,567	0	0	273	82,044
Share of joint costs	34,426		44,021	17,677	20,317	0	116,441
Total	37,630		122,588	17,677	20,317	273	198,485
Gavins Point		100,000					
Specific costs	0		30,712	0	0	0	30,712
Share of joint costs	7,603		21,740	0	0	0	29,343
Total	7,603		52,452	0	0	0	60,055
System		1,530,000					
Specific costs	10,704		405,181	0	0	1,503	417,388
Share of joint costs	182,341		298,744	108,158	124,311	0	713,554
Total	193,045		703,925	108,158	124,311	1,503	1,130,942

***Missouri River main-stem reservoirs—Allocation of first costs*—Continued**

[In thousands of dollars]

SEPTEMBER 1954

	Flood control	Power		Navigation	Irrigation	Recreation	Total
		Installation (kilowatt)	Costs				
Fort Peck		165,000					
Specific costs	$700		$39,853	0	0	$500	$41,053
Share of joint costs	22,100		45,047	$14,800	$35,300	0	117,247
Total	22,800		84,900	14,800	35,300	500	158,300
Garrison		400,000					
Specific costs	5,913		86,391	0	0	1,200	93,504
Share of joint costs	37,987		77,309	25,500	60,700	0	201,496
Total	43,900		163,700	25,500	60,700	1,200	295,000
Oahe		425,000					
Specific costs	5,300		118,017	0	0	400	123,717
Share of joint costs	43,900		89,483	29,400	70,300	0	233,083
Total	49,200		207,500	29,400	70,300	400	356,800
Big Bend		120,000					
Specific costs	0		71,500	0	0	0	71,500
Share of joint costs	0		0	0	0	0	0
Total	0		71,500	0	0	0	71,500
Fort Randall		320,000					
Specific costs	3,229		77,282	0	0	500	81,011
Share of joint costs	30,771		62,618	20,600	0	0	113,989
Total	34,000		139,900	20,600	0	500	195,000
Gavins Point		100,000					
Specific costs	0		25,281	0	0	600	25,881
Share of joint costs	7,300		14,919	4,900	0	0	27,119
Total	7,300		40,200	4,900	0	600	53,000
System		1,530,000					
Specific costs	15,142		418,324	0	0	3,200	436,666
Share of joint costs	142,058		289,376	95,200	166,300	0	692,934
Total	157,200		707,700	95,200	166,300	3,200	1,129,600

JANUARY 1956

Fort Peck		165,000					
Specific costs	$700		$40,671	0	0	$500	$41,871
Share of joint costs	21,800		44,429	$15,700	$35,300	0	117,229
Total	22,500		85,100	15,700	35,300	500	159,100
Garrison		400,000					
Specific costs	5,502		92,783	0	0	1,000	99,285
Share of joint costs	36,198		73,817	26,000	58,700	0	194,715
Total	41,700		166,600	26,000	58,700	1,000	294,000
Oahe		425,000					
Specific costs	5,218		130,410	0	0	900	136,528
Share of joint costs	40,582		82,590	29,100	65,700	0	217,972
Total	45,800		213,000	29,100	65,700	900	354,500
Big Bend		217,000					
Specific costs	0		73,000	0	0	0	73,000
Share of joint costs	0		0	0	0	0	0
Total	0		73,000	0	0	0	73,000

***Missouri River main-stem reservoirs—Allocation of first costs*—Continued**

[In thousands of dollars]

JANUARY 1953—Continued

	Flood control	Power		Navigation	Irrigation	Recreation	Total
		Installation (kilowatt)	Costs				
Fort Randall		320,000					
Specific costs	$3,354		$75,933	0	0	$500	$79,787
Share of joint costs	29,246		59,367	$20,900	0	0	109,513
Total	32,600		135,300	20,900	0	500	189,300
Gavins Point		100,000					
Specific costs	0		25,094	0	0	300	25,394
Share of joint costs	9,100		18,506	0	0	0	27,606
Total	9,100		43,600	0	0	300	53,000
System		1,627,000					
Specific costs	14,774		437,891	0	0	3,200	455,865
Share of joint costs	136,920		278,709	91,700	$159,700	0	667,035
Total	151,700		716,600	91,700	159,700	3,200	1,122,900

SEPTEMBER 1956 (PRICE LEVEL 1954)

Fort Peck		165,000					
Specific costs	$700		$39,800	0	0	$500	$41,000
Share of joint costs	21,900		44,500	$15,600	$35,300	0	117,300
Total	22,600		84,300	15,600	35,300	500	158,300
Garrison		400,000					
Specific costs	6,000		86,300	0	0	1,200	93,500
Share of joint costs	37,400		76,600	26,800	60,700	0	201,500
Total	43,400		162,900	26,800	60,700	1,200	295,000
Oahe		425,000					
Specific costs	5,300		118,000	0	0	400	123,700
Share of joint costs	43,400		88,400	31,000	70,300	0	233,100
Total	48,700		206,400	31,000	70,300	400	356,800
Big Bend		120,000					
Specific costs	0		71,500	0	0	0	71,500
Share of joint costs	0		0	0	0	0	0
Total	0		71,500	0	0	0	71,500
Fort Randall		320,000					
Specific costs	3,200		77,300	0	0	500	81,000
Share of joint costs	30,400		61,800	0	0	0	114,000
Total	33,600		139,100	21,800	0	500	195,000
Gavins Point		100,000					
Specific costs	0		25,300	0	0	600	25,900
Share of joint costs	8,900		18,200	0	0	0	27,100
Total	8,900		43,500	0	0	600	53,000
System		1,530,000					
Specific costs	15,200		418,200	0	0	3,200	436,600
Share of joint costs	142,000		289,500	95,200	166,300	0	693,000
Total	157,200		707,700	95,200	166,300	3,200	1,129,600

Missouri River main-stem reservoirs—Allocation of first costs—Continued

[In thousands of dollars]

JANUARY 1957

	Flood control	Power		Navigation	Irrigation	Recreation	Total
		Installation (kilowatt)	Costs				
Fort Peck		165,000					
Specific costs	$690		$42,550	0	0	$500	$43,840
Share of joint costs	23,310		40,850	$16,700	$35,500	0	116,360
Total	24,000		83,500	16,700	35,500	500	160,200
Garrison		400,000					
Specific costs	6,689		88,253	0	0	800	95,742
Share of joint costs	39,711		69,547	28,500	60,500	0	198,258
Total	46,400		157,800	28,500	60,500	800	294,000
Oahe		595,000					
Specic costs	4,485		179,760	0	10,658	800	195,703
Share of joint costs	36,915		64,640	26,500	56,242	0	184,297
Total	41,400		244,400	26,500	66,900	800	380,000
Big Bend		217,000					
Specific costs	0		75,600	0	0	0	75,600
Share of joint costs	0		0	0	0	0	0
Total	0		75,600	0	0	0	75,600
Fort Randall		320,000					
Specific costs	3,389		74,841	0	0	400	78,630
Share of joint costs	30,911		54,059	22,100	0	0	107,070
Total	34,300		128,900	22,100	0	400	185,700
Gavins Point		100,000					
Specific costs	0		22,289	0	0	600	22,889
Share of joint costs	9,000		15,911	0	0	0	24,911
Total	9,000		38,200	0	0	600	27,800
System		1,797,000					
Specific costs	15,253		483,393	0	10,658	3,100	512,404
Share of joint costs	139,847		245,007	93,800	152,242	0	630,896
Total	155,100		728,400	93,800	162,900	3,100	1,143,300

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D. C., May 1, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: This is in reply to a telephone request from a member of the staff of your committee on April 30, 1957, for information on the estimated traffic submitted to Congress at the time the Missouri River Channel stabilization and navigation project was being considered for authorization.

House Document No. 214, 76th Congress, 1st session, which recommended that the authorized 6-foot navigation project on the Missouri River should be increased to a 9-foot channel project indicated that commercial traffic of only 600,000 tons per annum would justify the increased cost of a 9-foot channel; and estimated that about 12 million tons of freight per annum might be attracted to water transportation on a 9-foot channel on the Missouri River from Sioux

City, Iowa, to the mouth. The 12-million-ton figure was selected from a review of earlier forecasts. Between 1926 and 1939 several forecasts of potential river traffic had been made by various organizations. Those surveys indicated a traffic potential of from 8 million to 12 million tons for the river below Sioux City, and some of the surveys indicated traffic in excess of this amount for only portions of the waterway.

In 1950 the Missouri River division of the Corps of Engineers, with the assistance of experts from the Board of Engineers for Rivers and Harbors conducted a complete study and thorough analysis of potential commerce and navigation benefits for the 9-foot channel project on the Missouri River from Sioux City to the mouth. On the basis of this study it was concluded that 5 million tons of commercial traffic annually could be expected to develop in the Missouri River within a reasonable period after completion of construction of the 9-foot channel project. Navigation benefits estimates since 1950 have been based on a 20-year development period, after completion of construction, during which traffic will increase progressively to the 5-million-ton level; although this increase will undoubtedly continue, no further increase in tonnage after that date has been claimed for purposes of benefit evaluation. Construction on the project is scheduled for completion to provide a full 9-foot channel depth by the mid-1960's. At the present time, navigable depths are limited to 6½ to 7 feet from the mouth to Kansas City, and 6 to 6½ feet on upstream to Omaha.

Sincerely yours,

J. L. PERSON,
Brigadier General, USA,
Assistant Chief of Engineers for Civil Works.

UNITED STATES SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
April 5, 1957.

Hon. FRED A. SEATON,
Secretary of the Interior, Washington, D. C.

DEAR MR. SECRETARY: There has been transmitted to Congress joint resolutions of the Montana and South Dakota Legislatures which, in effect, allege violation of the letter and spirit of the O'Mahoney-Millikin amendment as a result of release in recent years of upper Missouri Basin water for navigation, mismanagement of power generation and distribution, and consequent impending power shortage in the area.

Pursuant to these legislative memorials, the Interior and Insular Affairs Committee will hold hearings May 1 and 2, to hear witnesses from the upper Missouri Basin States. We would appreciate your having present at those hearings representatives qualified to answer questions of committee members. Will you please supply us, by April 25, the following material:

1. Copies of monthly operating reports for generating plants on the Missouri River and its tributaries, beginning with April 1954 including the record of power sales and data on water storage releases.
2. Bureau plans for purchasing power or making interchangeable arrangements to firm additional power or otherwise meet further commitments in the Missouri Basin.
3. List of preference customers in the Missouri Basin and amounts of power requested by them which could not be supplied.
4. List of nonpreference customers with a brief statement of the principal features of their contract, including quantities of power involved and rates.
5. Summary of power sales at Canyon Ferry Dam, quantities of power wheeled from Canyon Ferry to preference customers, indicating cost of wheeling.
6. Original allocation of cost with respect to all Bureau of Reclamation projects in the Missouri Basin, and any subsequent changes.

We will greatly appreciate your cooperation.

Sincerely yours,

JAMES E. MURRAY, *Chairman.*

UNITED STATES DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., April 26, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: Pursuant to your request of April 5, 1957, there are submitted herewith the following data of the Bureau of Reclamation, referenced to the numbered items in your letter:

1. (*a*) Monthly operating reports, form PO&M 59, April 1954 to March 1957, inclusive, for the following powerplants:

Angostura	Lingle	Marys Lake
Canyon Ferry	Heart Mountain	Polehill
Boysen	Shoshone	Pilot Butte
Kortes	Estes	Alcova
Guernsey	Flatiron	Seminole

(*b*) Monthly recapitulation of energy sales and income, form PO&M 61A, April 1954 to March 1957, inclusive, for the reporting areas of:
North Platte River District
Fort Peck
Missouri River Basin, western division
Missouri River Basin, eastern division

2. Plans for obtaining supplemental power to meet Bureau of Reclamation commitments in the Missouri River Basin.

3. (*a*) Allottees not receiving firm power service as of March 31, 1957.
(*b*) Firm power applications of preference-type customers in the Missouri Basin power marketing area that have not been granted.

4. Bureau of Reclamation power contracts with non-preference-type customers in the Missouri River Basin power marketing area.

5. Summary of power sales and wheeling from the Canyon Ferry powerplant and of wheeling charges paid.

6. Statement on Missouri River Basin project cost allocations including:
(*a*) Economic analysis, Missouri River Basin project, revised April 1955.
(*b*) Power system average rate and repayment study, September 1956.
(*c*) Missouri River Basin project payout study, December 1955.

The further division of data submitted on PO&M 61A under item 1, to reflect the separation of energy sales into firm and nonfirm categories, requested by Mr. Lineweaver by telephone to the Bureau of Reclamation, will be submitted as soon as available.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

(Item 1, the monthly operating reports on Bureau of Reclamation projects in the Missouri Basin, is available in the files of the Interior and Insular Affairs Committee.)

PLANS FOR OBTAINING SUPPLEMENTAL POWER TO MEET BUREAU OF RECLAMATION COMMITMENTS IN THE MISSOURI RIVER BASIN

In 1954 allotments of firm power were made to preference customers for the eastern area of the eastern division of the Missouri River Basin, equal to 100 percent of estimated 1958 requirements except in southern Minnesota, eastern Nebraska, and western Iowa where the allotment was 50 percent of such estimated requirements. No definite allotments were made in the western area of the eastern division or the western division, but instead contracts were authorized based upon the needs of the preference customers through 1956. Subsequently, for the area west of Fort Peck and for the western division the

1956 date was extended through 1959, and for the area east and southward of Fort Peck, generally in Montana, such date was extended through 1958.

Owing to the fact that several of the main stem powerplants would be under construction during the period of 1954–58, the Bureau is providing for variable interim contract rates of delivery based upon need until the maximum authorized contract rate of delivery is reached. In the area west of Fort Peck and in the western division interim rates of delivery are being used until January 1, 1960, when the full authorized contract rate of delivery will be effective.

Due to the extended drought since 1954, the requirements of reservoir filling, the requirements for downstream navigation releases, and the winter icing condition operations on the river, precise forecasting of power and energy to be available in any year is impossible. Because of these unknown factors, it has not been practicable to begin service to some customers as early as had been anticipated, since once starting service the Bureau believes it highly desirable that such service should be continued. The unpredictability of adverse conditions has made it necessary that the Bureau provide means whereby additional energy may be secured from other sources.

In order to meet customer requirements under less than favorable power and energy availability conditions, the Bureau of Reclamation has made interconnections with other power suppliers including both public and privately owned systems. To the extent practicable, arrangements have been made for the purchase of offpeak steam generated energy in order to conserve water for peaking requirements. Arrangements have also been made for interchange of energy including some arrangements for interchange of Bureau summer hydro energy for winter steam energy. The Bureau believes that by means of such arrangements it will have available power and energy to meet its contract commitments as they from time to time exist.

Preliminary estimates of power and energy capabilities by the Corps of Engineers and the Bureau for the winter of 1958–59 indicate that there will be sufficient power and energy to enable the Bureau to supply in full the power allocated to customers in the 1954 power allocation plan.

Allottees not receiving firm power service as of Mar. 31, 1957

Allottee	*Firm power allotment (kilowatts)*
North Dakota:	
Municipalities:	
Cavalier	1,000
Grafton	2,735
Park River	900
Other preference-type customers:	
State of North Dakota	7,975
South Dakota:	
Municipalities:	
Hecla	220
Onida	475
Other preference-type customers:	
U. S. Air Force, Pickstown	750
State of South Dakota	8,340
Black Hills Ornance Depot	3,200
Minnesota:	
Rural electric cooperatives:	
Brown County	2,300
Central Minnesota	2,000
Federated Rural	4,200
Itasca-Mantrap	615
Lake Region	12,900
Lyon-Lincoln	2,300
McLeod Cooperative	1,000
Meeker Cooperative	2,500
Minnesota Valley	5,200

Allottees not receiving firm power service as of Mar. 31, 1957—Continued

Allottee	*Firm power allotment (kilowatts)*
Minnesota—Continued	
Rural electric cooperatives—Continued	
Nobles Cooperative	3,800
Renville-Sibley	1,900
Runestone Electric	3,400
Rural Cooperative	2,500
South Central	3,300
Stearns Cooperative	3,300
Todd-Wadena Electric	4,500
Traverse Electric	1,400
Western Minnesota Power	3,800
Municipalities:	
Alexandria	2,500
Benson	1,200
Detroit Lakes	1,000
Fosston	1,200
Granite Falls	1,380
Hardwick	200
Hawley	275
Jackson	300
Lake Park	300
Litchfield	2,400
Luverne	500
Madison	900
Marshall	1,100
Moorhead	14,000
Olivia	700
Ortonville	900
Redwood Falls	2,100
Sauk Centre	1,200
St. James	1,100
Thief River Falls	4,100
Tyler	400
Wadena	2,250
Iowa:	
Municipalities:	
Denison	1,800
Hawarden	1,000
Laurens	700
Manilla	350
Mapleton	500
Remsen	500
Sanborn	400
Nebraska:	
Municipalities:	
Auburn	1,100
Blair	1,200
Broken Bow	1,200
Fairbury	2,800
Fremont	6,000
Pender	500
Schuyler	1,200
Wakefield	400
Wayne	1,200
Wilbur	400

Firm power applications of preference-type customers in the Missouri Basin power marketing area that have not been granted

NOTE A.—Asterisk (*) denotes application is for power delivery after 1958.
NOTE B.—In addition to the list below, many customers now served or awaiting promised service have informally expressed an interest in obtaining additional power, but have not made formal application pending notice that applications will be entertained.

Applicant	Amount of firm power requested, kilowatts
Montana:	
Cooperatives:	
*Montana Transmission and Electric Cooperative	[1]
North Dakota:	
Cooperatives:	
*Central Power Electric Cooperative	[2]
Slope Electric	475
*Northwest Power Cooperative	[1]
Municipalities:	
Northwood	[3]
Hankinson	750
Minot	10,000
Elgin	[3]
New Leipzig	[3]
Other preference:	
Minot Airbase	10,000
South Dakota:	
Municipalities:	
Volga	330
Elk Point	600
Pukwana	150
Minnesota:	
Municipalities:	
Ada	1,500
Alvarado	[3]
Breckenridge	3,000
Bigelow	[3]
Stephen	1,000
Windom	1,250
Iowa:	
Municipalities:	
Milford	[3]
Atlantic	[3]
Shelby	300
Akron	800
Nebraska:	
Municipalities:	
Tecumeh	[3]
Emerson	[3]
Winside	[3]
Sutherland	[3]
Other preference:	
Offutt Air Base	5,000
Lincoln Air Base	[4]
Omaha Public Power District	[5] 100,000
Nebraska Public Power District	100,000 [6] 150,000

[1] These customers applied jointly for 10,000 kilowatts.
[2] Varying amounts up to 34,000 kilowatts in 1965.
[3] These customers did not request a specific amount of power.
[4] Negotiations in process for reallotment of 5,000 kilowatts from Ellsworth Air Force Base to Lincoln Airbase.
[5] Summer power only.
[6] Seasonal power for irrigation pumping.

BUREAU OF RECLAMATION POWER CONTRACTS WITH NONPREFERENCE-TYPE CUSTOMERS IN THE MISSOURI RIVER BASIN POWER MARKETING AREA

CONTRACTS IN THE REGION 6 PORTION OF THE AREA

I. Central Electric & Gas Co., contract No. 14-06-600-1537:

Date of contract: May 1, 1955.
Contract expires: December 31, 1974.
Bureau service supplied:
Secondary energy: Contract rate of delivery, 5,300 kilowatts.
Rate schedule: MRB-S5.
Dump energy—as available.
Rate: 85 percent of customer saving in fuel cost but not over 3.5 mills per kilowatt-hour.
Emergency service—as available and required.
Rate: Same as under rate schedule MRB-F4.
Points of interconnection: Woonsocket, S. Dak.
Service area: Customer operates in east central South Dakota.

II. Northwestern Public Service Co., contract No. 14-06-600-2039:

Date of contract: October 23, 1956.
Contract expires: December 31, 1976.
Bureau service supplies:
Firm power: Contract rate of delivery, 15,000 kilowatts.
Rate schedule: MRB-S5.
NOTE.—Service is subject to a declaration of availability by the United States. No such declaration has been made and there appears to be little prospect of its availability for term of contract. In any case firm service terminates in 1974.
Secondary energy: Contract rate of delivery, 60,000 kilowatts.
Rate schedule: MRB-S5.
Dump energy: As available.
Rate: 85 percent of customer saving in fuel cost but not over 3.5 mills per kilowatt-hour.
Wheeling service: By either party over the other's system at a rate of 1 mill per kilowatt-hour delivered plus 7 percent for losses.
Emergency and interchange service: By either party to the other to be supplied as available and required. This includes emergency service for wheeled loads. Compensation is on the basis of the return of the energy used.
Points of interconnection:
Armour, S. Dak.
Watertown, S. Dak.
Groton, S. Dak.
Yankton, S. Dak.
Huron, S. Dak.
Service Area: Customer operates in eastern South Dakota.

III (*a*). Black Hills Power & Light Co., contract No. I79r-1760:

Date of Contract: September 19, 1950.
Contract expires: June 30, 1961. Contract can be terminated on a 2-year notice by either party.
Bureau service supplied:
Firm Power: As available from 1,200-kilowatt Angostura plant after deduct-power needs of Angostura unit operation and maintenance camp. Withdrawable for service to preference customers. If withdrawn, contract terminates.
Rate schedule: MRB-F1.
Customer service supplied: To Bureau for camp use when Angostura powerplant is not in operation.
Rate: Company schedule IPC-2.
Point of interconnection: Angostura, S. Dak.

III (b). Black Hills Power & Light Co., contract No. 14–06–600–1585:

Date of Contract: June 11, 1955
Contract expires: December 31, 1976. Company can terminate any time until July 1960 on 12-month notice.
Bureau service supplied:
Secondary energy: Contract rate of delivery, 10,000 kilowatts.
Rate Schedule: MRB–S5.
Dump energy: As available
Rate: 85% of customer saving in fuel cost but not over 3.5 mills per kilowatt-hour.
Emergency and interchange service: Will be supplied as it is available by either party to the other. Emergency service for the Bureau is limited to loads of Rushmore G. & T. Electric Cooperative, a customer of the Bureau. Compensation is by return of energy at rate of exchange provided in the contract.
Customer service supplied:
Wheeling service: To loads of Rushmore G. & T. Electric Cooperative at rate of 1 mill per kilowatt-hour delivered plus 7 percent for losses.
Other: Customer agrees to sell power to Bureau as it may be available at cost of fuel plus 15 percent thereof.
Point of interconnection: Rapid City, S. Dak.
Service area: Customer operates in western South Dakota and northeastern Wyoming.

IV. Western Contracting Corp., contract No. 14–06–600–1555:

Date of contract: June 13, 1955.
Contract expires: December 31, 1959.
Bureau service supplied:
Secondary energy: Contract rate of delivery—2,000 kilowatts.
Rate schedule: MRB–S5.
Emergency service: As available and required.
Rate: Same as under rate schedule MRB–F4.
Point of interconnection: 3 miles north of Pierre, S. Dak.
Service area: Customer is a construction contractor at Oahe Dam in South Dakota.

V. Otter Tail Power Co., Contract No. 179r–1952:

Date of contract: March 14, 1950.
Contract expires: December 31, 1976.
Bureau service supplied:
Secondary energy: Contract rate of delivery, 100,000 kilowatts.
Rate schedule: MRB–S5.
Dump energy: As available.
Rate: 85 percent of customer saving in fuel cost but not over 3.5 mills per kilowatt-hour.
Wheeling service: By either party over the other's system at a rate of 1 mill per kilowatt-hour delivered plus 7 percent for losses.
Emergency service: By either party to the other as available and required. Rate for Bureau service is 4 mills per kilowatt-hour. Rate for customer service is fuel cost plus 15 percent thereof plus other costs when service is from units held in cold reserve.
Interchange: By either party to the other as available and desired. Compensation is by return of energy.
Customer service supplied:
Standby: For Bureau wheeled loads, as available. Compensation is by return of energy except that for loads in Minnesota an additional payment of 10 cents per kilowatt-day is made.
Energy: To Bureau as available and desired. Compensation at fuel cost plus 15 percent thereof.
Points of interconnection:

Rugby, N. Dak.
Devils Lake, N. Dak.
Carrington, N. Dak.
Jamestown, N. Dak.
Edgeley, N. Dak.
Forman, N. Dak.
Washburn, N. Dak.
Rolla, N. Dak.
Fargo, N. Dak. (at 2 voltages).
Granite Falls, Minn.
Brookings, S. Dak.
Summit, S. Dak.
Voltaire, N. Dak.

Customer service area: Western Minnesota, northeastern South Dakota, central and eastern North Dakota.

VI (*a*). Northern States Power Co., contract No. 14–06–600–1940:

Date of contract: July 2, 1956.
Contract expires: December 31, 1976. May be terminated by either party on 30 day's notice.
Bureau service supplied:
Dump energy: As available.
Rate: 85 percent of customer saving in fuel cost, but not over 3.5 mills per kilowatt-hour.
Points of interconnection:
Sioux Falls, S. Dak.
Granite Falls, Minn. (at 2 voltages).
Fargo, N. Dak.
Voltaire, N. Dak.
Customer service area: Southern Minnesota, southeastern South Dakota, eastern North Dakota, plus Minot, N. Dak.

VI (*b*). Northern States Power Co., contract No. 14–06–600–1556:

Date of contract: June 14, 1955.
Contract expires: December 31, 1976.
Wheeling service: Each party delivers power over its system for the account of the other. Compensation: One mill per kilowatt-hour delivered plus 7 percent thereof for losses.
Standby service: Customer supplies power, as available, for Bureau loads on its system. Compensation is return of energy plus a payment of 10 cents per kilowatt-day.

VII. Interstate Power Co., contract No. 14–06–600–1557:

Date of contract: June 14, 1955.
Contract expires: December 31, 1976.
Customer service supplied: Delivers power to Bureau customers over its system for Bureau account. Compensation is 1 mill per kilowatt-hour delivered plus 8 percent thereof for losses. (11 percent if delivery is at less than 34,500 volts.)
Standby service: Customer supplies, as available, for Bureau loads on its system. Compensation is return of energy plus 10 cents per kilowatt-day.
Points of interconnection: Through system of Northern States Power Co. near Sioux Falls, S. Dak.
Service area of customer: Southern Minnesota and northern Iowa. Iowa portion not considered in Bureau arrangement.

VIII. Montana-Dakota Utilities Co., contract No. 14–06–600–2070:

Date of contract: November 21, 1956.
Contract expires: December 31, 1975.
Bureau service supplied:
Firm power: Contract rate of delivery 7,500 kilowatts. Rate schedule: MRB–S5 (2,500 kilowatts of this withdrawable on 1 year's notice. The total firm power terminates November 30, 1960).
Secondary energy: Contract rate of delivery 67,000 kilowatts. Rate schedule: MRB–S5.
Wheeling service: By either party over the other's system at a rate of 1 mill per kilowatt-hour delivered plus 7 percent thereof for losses.
Emerency service: By either party to the other as available and required. Compensation is on the basis of the return of energy, except if customer operates units held in cold reserve compensation will be for direct costs plus 15 percent thereof.
Interchange: By either party to the other as available and desired. Compensation by return of energy.
Customer service supplied: Energy, as available and desired. Compensation at 115 percent of fuel cost but not less than 4.025 mills per kilowatt-hour.

Points of interconnection:
Glendive, Mont.
Miles City, Mont.
Wolf Point, Mont.
Sidney, Mont.
Williston, N. Dak.
Watford City, N. Dak.
Beulah, N. Dak.
Bismarck, N. Dak.
Mandan, N. Dak. (Heskett plant interconnection).
DeVaul, N. Dak.
Ellendale, N. Dak.
Mobridge, S. Dak.

Customer service area: Northern South Dakota, western and south-central North Dakota, and eastern Montana.

IX (*a*) The Montana Power Co., contract No. IIr–1416:

Date of Contract: July 1, 1943.

Contract expires: December 31, 1970. May be terminated by either party after June 30, 1958, on 2 years' notice.

Bureau service supplied:
Dump energy: As available, at 2½ mills per kilowatt-hour.

Customer service supplied: As required by Bureau to meet its loads when Fort Peck plant is out of service. Compensation is by return of energy.

Points of interconnection: Whately, Havre, and Great Falls (Rainbow), Mont.

IX (*b*). The Montana Power Co., contract No. 179r–1836:

Date of Contract: January 24, 1951.

Contract expires: December 31, 1970. May be terminated by either party on 3 years' notice after December 31, 1957.

Wheeling service: Each party delivers power over its system for the account of other. Compensation varies by zones, from 1 mill to 4 mills per kilowatt-hour and from 4 to 16 percent loss. Zones are under 50 miles, 50–100 miles, 100–150 miles, and over 150 miles, in any direction from points of interconnection.

Standby service: For wheeled loads, standby is supplied by either party and is compensated for by the return of energy.

Points of interconnection:
East Helena, Mont.
Great Falls, Mont.
Whately, Mont.

IX (*c*). The Montana Power Co., contract No. 179r–1838:

Date of Contract: January 25, 1951.

Contract expires: December 31, 1975. Either party may terminate on 3 years' notice.

Customer service supplied: Unrestricted use by Bureau of customer's 100 kilovolt transmission lines between Bureau connections at East Helena and Great Falls, Mont., up to capability of Canyon Ferry generators. Compensation is $45,000 per year plus 5 percent of energy transmitted for losses.

IX (*d*). The Montana Power Co., contract No. 14–06–600–912:

Date of contract: December 1, 1953.

Contract expires: December 1, 1963. May be terminated by either party on 30 days' notice.

Bureau service supplied:
Dump energy: As available from Canyon Ferry Plant.
Compensation: 2½ mills per kilowatt-hour.

Point of interconnection: East Helena, Mont.

IX (*e*). The Montana Power Co., contract No. 14–06–600–1845:

Date of contract: June 1, 1956.

Contract expires: April 30, 1976. Part 2 of contract, covering firm power deliveries, may be terminated on April 30, 1962, or any time thereafter on 1 year's notice. Remainder of contract to remain in effect 3 years after part 2 terminates.

Bureau service supplied:
Firm power:
Contract rate of delivery, 25,000 kilowatts plus any additional declared available annually.
Schedule of rates: MRB–F4.
Wheeling:
On Bureau system between Great Falls, Mont. (Rainbow), and points of delivery of firm power.
Compensation: 1 mill per kilowatt-hour delivered plus 7 percent thereof for losses.
Points of interconnection:
Great Falls, Mont. (Rainbow), for receipt of wheeled service.
Havre, Mont., and Whately, Mont.: for firm power deliveries.
Customer service area: All of Montana except for eastern portion.

CONTRACTS IN THE REGION 7 PORTION OF THE AREA

X. Iowa Public Service Co., contract No. 14–06–700–993:

Date of contract: April 1, 1956.
Contract expires: March 31, 1958.
Bureau service supplied:
Dump energy: As available.
Rate: 85 percent of customer saving in fuel cost but not over 3.5 mills per kilowatt-hour.
Point of interconnection: Sioux City, Iowa.
Service area: Customer operates in western Iowa.

XI (*a*). Public Service Company of Colorado, contract No. 181r–1242:

Date of contract: February 15, 1950.
Contract expires: May 31, 1957, by notice given under 3-year withdrawal provision.
Bureau service supplied:
Firm power: Contract rate of delivery, 7,000 kilowatts.
Rate schedule: MRB–F3.
Points of interconnection: Sterling and Brush, Colo.
Service area: Customer operates in central and northern Colorado.

XI (*b*). Public Service Company of Colorado, contract No. 181r–1499:

Date of contract: January 2, 1952.
Contract expires: December 31, 1957.
Bureau service supplied:
Peaking capacity: 1,000 kilowatts.
Rate: $1 per kilowatt-month.
Dump energy: As available.
Rate: 2 mills per kilowatt-hour.
Interchange service: Will be supplied as it is available by either party to the other. Compensation is by return of energy.
Customer service supplied:
Energy: To Bureau as available and desired. Compensation is 4.5 mills for the first 250 kilowatt-hours per kilowat scheduled delivery plus 4 mills per kilowatt-hour for the rest.
Points of interconnection: Greeley, Dillon, and Erie, Colo.

XI (*c*). Public Service Company of Colorado, contract No. 181r–1305:

Date of contract: August 18, 1950.
Contract expires: December 31, 1960.
Wheeling service: Each party delivers power over its system for the account of other. Compensation varies by zones, from 1 mill to 3 mills per kilowatt-hour and from 3 to 9 percent loss. Zones are under 50 miles, 50–100 miles, and 100–150 miles in any direction from points of interconnection.
Standby service: For wheeled loads, standby is supplied by either party and is compensated for by the return of energy.
Points of interconnection: Greeley, Colo., Dillon, Colo.

XII (a). Pacific Power & Light Co., contract No. I79r–2101:

Date of contract: January 1, 1950.
Contract expires: December 31, 1959.
Bureau service supplied:
Firm power: Contract rate of delivery—13,610 kilowatts; may be withdrawn for preference customers on 36 months' notice.
Rate schedules: R6–F3.
Secondary energy: Contract rate of delivery—1,000 kilowatts.
Rate schedule: R6–S3.
Wheeling service: By either party over the other's system at a rate of 1 mill per kilowatt-hour plus 7 percent for losses.
Points of interconnection: All in Wyoming: Thermopolis, Garland, Elk Basin, Powell, Cody, Shoshoni, Lovell, Beet Dump, Riverton, Pavillion, Morton, Freemont, Grass Creek, Basin.
Service area: Customer operates in northwestern Wyoming.

XII (b). Pacific Power & Light Co., contract No. I81r–1200:

Date of contract: May 15, 1950.
Contract expires: July 31, 1959.
Bureau service supplied:
Firm power: Contract rate of delivery—9,000 kilowatts, may be withdrawn for preference customers on 36 months' notice.
Rate schedule: MRB–S4.
Secondary energy: Contract rate of delivery—3,000 kilowatts.
Rate schedule: MRB–S4.
Emergency service: By either party to the other as available and required. Rate for Bureau service is under MRB–S4 without secondary billing demand credit. Rate for customer service is 6 mills per kilowatt-hour with fuel clause adjustment.
Interchange: By either party to the other as available and required. Compensation is by return of energy.
Customer service supplied:
Energy—to Bureau as available and desired. Compensation is 6 mills per kilowatt-hour with fuel clause adjustment.
Points of interconnection: Casper, Wyo., Guernsey, Wyo., Glendo, Wyo.

XII (c). Pacific Power & Light Co., contract No. I81r–1325:

Date of contract: September 1, 1950.
Contract expires: August. 31, 1960.
Bureau service supplied:
Firm power: Contract rate of delivery—1,000 kilowatts; may be withdrawn for preference customers on 36 months' notice.
Rate schedule: MRB–S4.
Secondary energy: Contract rate of delivery—3,000 kilowatts.
Rate schedule: MRB–S4.
Emergency service: By either party to the other as available and required.
Rate for Bureau service is under MRB–S4 without secondary billing demand credit.
Rate for customer service is 7 mills per kilowatt-hour with a fuel clause adjustment.
Interchange: By either party to the other as available and required. Compensation is by return of energy.
Customer service supplied:
Energy—to Bureau as available and desired. Compensation is 7 mills per kilowatt-hour with fuel clause adjustment.
Points of interconnection: Laramie, Wyo (substation); Laramie, Wyo. (aggregate plant).

XII (d). Pacific Power & Light Co., contract No. I81r–1502:

Date of contract: January 10, 1952.
Contract expires: December 31, 1961.
Bureau service supplied:
Firm power: Contract rate of delivery—1,500 kilowatts; may be withdrawn for preference customers on 36 months' notice.
Rate schedule: MRB–F3.
Point of interconnection: Three miles west of Casper substation.

XIII. Miscellaneous nonpreference contracts:

(A) CONTRACTS WITH PRIVATE UTILITIES INVOLVING SALE OF POWER UNDER STANDARD CONTRACTS AT STANDARD RATES

Contract for	Effective date of contract	Expiration date of contract	Firm contract rate of delivery	Secondary contract rate of delivery	1956 peak demand USBR	1956 energy from USBR
			Kilowatts	*Kilowatts*	*Megawatt-hours*	*Megawatt-hours*
Cheyenne Light, Fuel & Power	Apr. 1, 1950	Mar. 31, 1960	6,000	5,500	[1] 16,512	65,090
Kremmling Light & Power	Oct. 27, 1952	Sept. 30, 1962	230	0	739	2,566
Medicine Bow Electric Co.	Dec. 8, 1948	Dec. 31, 1958	100	0	168	521
Rawlins Electric Co.[2]	Aug. 1, 1950	July 31, 1959	930	750	3,600	14,699
	June 24, 1952	May 31, 1962	50	0	1,247	4,587
North Fork Power & Light	Jan. 30, 1953	May 31, 1963	20	0	77	82
Southern Wyoming Utilities	Jan. 17, 1951	Sept. 30, 1961	750	0	504	1,933

(B) CONTRACTS WITH COMMERCIAL AND INDUSTRIAL CUSTOMERS FOR SALE OF POWER UNDER STANDARD BUREAU RATES

Moffat Coal Co., Colorado	Aug. 31, 1951	Nov. 30, 1960	150	----------	192	154
Colorado Fuel & Iron Co., Wyoming	Jan. 1, 1948	Dec. 31, 1957	1,500	----------	1,980	6,570
Frontier Refining Co., Wyoming	------do------	------do------	1,000	----------	1,123	8,129
Guernsey Stone Co., Wyoming	------do------	------do------	150	----------	456	446
Holly Sugar Co., Wyoming	May 1, 1947	------do------	100	----------	147	210
Keystone Coal Co., Colorado	Jan. 21, 1955	Nov. 30, 1960	300	----------	540	1,013
Monolith Portland Cement Co.	Aug. 1, 1954	July 31, 1959	2,500	----------	3,600	24,741
Sinclair Oil & Gas Co., Wyoming	July 31, 1951	May 31, 1961	1,200	----------	1,322	9,309

[1] Operates generating plant in addition to purchase from U. S. Bureau of Reclamation.
[2] The Rawlins Electric Co. is served at several delivery points under 2 separate contracts, both with similar provisions.

SUMMARY OF POWER SALES AND WHEELING FROM THE CANYON FERRY POWERPLANT AND OF WHEELING CHARGES PAID

Summary for period prior to September 1955.—Prior to September 1955, the Canyon Ferry powerplant normally operated as a separate system. The Bureau had the right to integrate Canyon Ferry output with the Fort Peck system through use of the Montana Power Co. facilities, but did so only temporarily for 2 periods of about 3 months and about 2 months, respectively, in 1955.

During this period, Canyon Ferry power sales, wheeling, and wheeling charges were as follows:

[Thousands of kilowatt-hours]

	1953	1954	Jan. 1 to Sept. 1, 1955
Sales to:			
Canyon Ferry unit camp	43	832	591
Crow Creek pumping plant	----------	520	422
Fort Peck project	----------	17,291	----------
The Montana Power Co. (dump energy)	1,927	142,734	159,279
Wheeling to Crow Creek pumping plant	0	532	431
Wheeling charges paid	0	$532.03	$430.85

Summary for period from September 1955 to June 1956.—Since September 1955, the Montana Power Co. lines between East Helena and Great Falls, Mont., were regularly utilized to connect the Canyon Ferry powerplant with the Fort Peck system. Power from the Canyon Ferry plant has been used as needed to supplement Fort Peck output in supplying Fort Peck project customers. On occasion the full output of the Canyon Ferry plant has been fed into the Fort Peck system and at such times considerable Canyon Ferry power went to Fort Peck customers located east of Fort Peck. Normally, however, Canyon Ferry power was used only to supplement Fort Peck power in supplying customers located west of Fort Peck.

Since July 1956, technical operating conditions have made it necessary to divide the Federal power system in the eastern diivsion into two parts, one part being connected through the Montana Power Co. to the Northwest Power Pool in the Pacific Northwest. The other part is connected through Nebraska, Iowa, and Minnesota to the network of interconnected systems extending to the Atlantic coast. Normally, the Federal eastern division system is divided at the Fort Peck powerplant, with the small 15,000-kilowatt Fort Peck generating unit connected to the west and the two 35,000-kilowatt generating units connected to the east. However, at times the split is made at other points such as Havre, Mont.; Williston, N. Dak.; or Watford City, N. Dak.

The following statistics are for the combined Canyon Ferry-Fort Peck-West system as it now normally exists. The sales are those toward which the Canyon Ferry powerplant normally provides a part of the power supply.

[Thousands of kilowatt-hours]

Sales to	Sept. 1 to Dec. 31, 1955	1956	Jan. 1 to Mar. 31, 1957
Canyon Ferry unit camp	346	951	371
Preference-type customers served by wheeling	891	2,060	113
Other preference-type customers	23,226	70,661	19,969
The Montana Power Co. (dump energy)	112,992	303,742	85,135
The Montana Power Co. (firm power)		33,633	16,483
Wheeling to preference-type customers	904	2,119	113
Wheeling charges paid	$904.40	$2,119.42	$113.22

Use of the Montana Power Co. lines between East Helena and Great Falls, Mont.—As mentioned earlier, these lines are the means by which Canyon Ferry power is integrated with that from the Fort Peck powerplant. For the use of these lines, which amounts to a lease of capacity in them since the Bureau's right to transmit the power is absolute, the Bureau pays the company a fixed fee of $45,000 per year. By special agreement which was terminated September 1, 1956, the fixed fee did not apply and, instead, a rate of $123.30 per day applied on days that the United States desired to be able to use the company's lines.

STATEMENT ON MISSOURI RIVER BASIN PROJECT COST ALLOCATION

The report of the Secretary of the Interior on the Missouri River Basin was submitted to Congress and printed as Senate Document 191, 78th Congress, 2d session. The cost allocation for the Missouri River Basin project under the plan envisoned therein was presented on page 27 of the report as follows:

Nonreimbursable:	
Flood control	$419,300,700
Navigation	97,245,000
Subtotal, nonreimbursable	516,545,700
Reimbursable:	
Irrigation, to be repaid by the water users	298,000,000
Power and irrigation, to be repaid by power revenues	423,100,000
Municipal water, to be repaid by water revenues	20,000,000
Total, reimbursable	741,100,000
Total estimated project cost	1,257,645,700

The plan presented in Senate Document 191, which involved duplication with the plans of the Corps of Engineers for the Missouri River Basin as presented in House Document 475, 78th Congress, 2d session, as modified by an agreement between the Bureau of Reclamation and the Corps of Engineers, which made certain revisions in the physical plan for the project as presented in Senate Document 247, 78th Congress, 2d session, was authorized for construction by the Bureau of Reclamation and the Corps of Engineers in the Flood Control Acts of 1944 and 1946.

Subsequent to the original authorization, specific enlargements or additions to the Bureau of Reclamation portion of the basin project were authorized by acts of Congress approved as follows:

Enlargement of Glendo unit: July 16, 1954.

Addition of Ainsworth, Lavaca Flats, Mirage Flats extension, and O'Neill units: August 21, 1954 (also Ainsworth, specifically approved May 18, 1956).

Reauthorization of the Farwell unit: August 3, 1956.

Although several preliminary drafts were prepared previously, no complete approved payout study and allocation of cost of the Missouri River Basin project was made until 1950 in connection with the approval of Missouri River Basin rates. Subsequently, in 1955, a later cost allocation was made. This allocation is presented in the publication entitled "Economic Analysis, Missouri River Basin Project, Revised April 1955," which presents detailed analyses based on prices as of June 30, 1954, and the plan of development as of that date. A copy of this report is enclosed for ready reference. The cost allocation is summarized on page 2 of the summary.

It should be noted that the two cost allocations discussed above are not comparable because of the change in plans at the time of authorization, not reflected in the original allocation, and subsequent changes authorized by Congress.

A cost allocation is also included in a payout table entitled "Missouri River Basin Project Payout Study," dated December 1955. The results presented therein are based on the detailed studies presented in the April 1955 analysis, indexed by shortcut methods to represent costs and plans as of June 30, 1955. An approximate allocation also was made in September 1956 to reflect costs and plans as of June 30, 1956, and is reflected in the Average Rate and Repayment Study for the Missouri River Basin Project, dated September 1956. Copies of both of these studies are attached.

UNITED STATES DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., May 7, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: Supplementing our letter of April 26, 1957, to you and in accordance with the last paragraph of that letter, there are enclosed tabulations showing firm and nonfirm sales and revenues in the Missouri River Basin for 1954 (April through December, inclusive), 1955, 1956, and 1957 (January through March, inclusive).

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

Missouri River Basin project, eastern division, calendar year 1957 (January through March, inclusive)

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	42,419,748	$208,371.17		$7,493.75
621	129,713,011	478,973.55		
622	176,607,380	803,858.14		
623	4,524,000	21,727.00		
624	27,570,734	131,609.68	$85,582,097	214,041.36
626	511,542	4,525.08		
629				
630				
631	384,741	1,531.36		
Total	381,731,156	1,640,595.98	85,582,097	221,535.11

	Sales	Revenue
Total sales:		
Firm	381,731,156	$1,650,595.98
Nonfirm	85,582,097	221,535.11
Total	467,313,253	1,872,131.09

Missouri River Basin project, eastern division, 1956

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	96, 510, 282	$484, 020. 03	23, 547, 422	$79, 383. 22
621	469, 406, 062	1, 709, 552. 00	95, 681, 050	235, 566. 80
622	440, 898, 155	2, 124, 951. 83	276, 453, 922	433, 538. 07
623	13, 038, 000	63, 407. 97		
624	38, 643, 315	184, 529. 67	545, 671, 790	1, 903, 369. 02
626	565, 182	3, 555. 96	1, 054, 926	3, 512. 92
629	6, 415	51. 82		
630	74, 400	2, 563. 19	3, 646, 872	12, 147. 36
631	2, 799, 999	8, 529. 43		
Total	1, 061, 941, 810	4, 581, 161. 90	946, 055, 982	2, 667, 517. 39

	Sales	Revenue
Total sales:		
Firm	1, 061, 941, 810	$4, 581, 161. 90
Nonfirm	946, 055, 982	2, 667, 517. 39
Total	2, 007, 997, 792	7, 248, 679. 29

Missouri River Basin project, eastern division, 1955

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	37, 716, 845	$189, 138. 47	19, 582, 157	$66, 065. 63
621	257, 544, 643	935, 978. 02	102, 007, 396	283, 380. 28
622	234, 055, 041	1, 193, 109. 79		
623	10, 586, 000	55, 427. 61		
624	4, 306, 665	18, 927. 40	392, 783, 920	1, 061, 422. 68
629	6, 930	57. 18		
630	1, 449, 352	8, 979. 80	1, 627, 200	5, 501. 52
631	2, 145, 333	6, 853. 54		
Total	547, 810, 809	2, 408, 471. 81	516, 000, 673	1, 391, 370. 11

	Sales	Revenue
Total sales:		
Firm	547, 810, 809	$2, 408, 471. 81
Nonfirm	516, 000, 673	1, 391, 370. 11
Total	1, 063, 811, 482	3, 799, 841. 92

Missouri River Basin project, eastern division, calendar year 1954 (April through December, inclusive)

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	3, 723, 073	$19, 607. 10	4, 430, 857	$15, 697. 09
621	28, 288, 000	110, 144. 90	137, 835, 000	367, 371. 42
622	67, 343, 365	352, 188. 54		
623	5, 270, 000	25, 472. 94		
624	8, 250	37. 65	136, 584, 941	351, 974 68
630	2, 697, 600	15, 451. 47		
631	1, 018, 860	3, 295. 20		
Total	108, 349, 148	526, 197. 80	278, 850, 798	735, 043. 19

	Sales	Revenue
Total sales:		
Firm	108, 349, 148	$526, 197. 80
Nonfirm	278, 850, 798	735. 043. 19
Total	387, 199, 946	1, 261, 240. 99

Fort Peck project, calendar year 1954 (April through December, inclusive)

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
622	142,623,146	$721,447.51	11,009,020	$38,102.02
624	51,066,600	240,477.43	104,834,425	305,256.14
625.2	2,577,320	9,994.49		
626	26,426,654	97,023.23		
Total	222,693,720	1,068,942.66	115,843,445	343,358.16

	Sales	Revenue
Total sales:		
Firm	222,693,720	$1,068,942.66
Nonfirm	115,843,445	343,358.16
Total	338,537,165	1,412,300.82

Fort Peck project, calendar year 1955

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
622	224,750,091	$1,135,138.94	16,076,532	$52,411.75
624	67,071,900	315,841.80	147,629,304	420,495.28
625.2	2,750,472	10,572.16		
626	33,411,958	124,909.03		
Total	327,984,421	1,586,461.93	163,705,836	472,907.03

	Sales	Revenue
Total sales:		
Firm	327,984,421	$1,586,461.93
Nonfirm	163,705,836	472,907.03
Total	491,690,257	2,059,368.96

Fort Peck project, calendar year 1956

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
622	170,395,302	$851,460.65	16,237,390	$52,910.01
624	62,943,490	203,685,76	109,737,458	327,071.58
625.2	712,819	2,842.41		
626	19,815,852	58,543.76		
Total	253,867,453	1,206,532.58	125,974,848	379,981.59

	Sales	Revenue
Total sales:		
Firm	253,867,453	$1,206,532.58
Nonfirm	125,974,848	379,981.59
Total	379,842,301	1,586,514.17

Fort Peck project, calendar year 1957 (January through March, inclusive)

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
622	41,158,254	$208,124.58	3,828,884	$12,536.65
624			(−2,154,421)	(−6,145.62)
625.2	68,962	275.84		
626	2,145	276.94		
Total	41,229,361	208,677.36	1,674,463	6,391.03

	Sales	Revenue
Total sales:		
Firm	41,229,361	$208,677.36
Nonfirm	1,674,463	6,391.03
Total	42,903,824	215,068.39

Missouri River Basin project, western division, calendar year 1954 (April through December, inclusive)

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	55,496,079	$386,096.71	6,179,469	$26,683.63
621	476,747	15,555.36	1,550,544	6,977.45
622	296,928,025	1,947,807.28	1,111,136	4,762.20
624	248,297,624	1,551,480.28	30,451,210	105,932.69
626	11,784,630	82,908.55		
627	8,225	107.00		
628	165,940	1,114.43		
629	869,784	5,388.44		
630	29,880,707	177,144.42		
631	38,726,900	71,774.40		
Total	682,634,661	4,239,466.87	39,292,359	144,355.97

	Sales	Revenue
Total sales:		
Firm	682,634,661	$4,239,466.87
Nonfirm	39,292,359	144,355.97
Total	721,927,020	4,383,822.84

Missouri River Basin project, western division, calendar year 1955

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	97,399,514	$676,245.20		
621	1,071,000	40,155.50		
622	399,559,047	2,641,494.69		
624	391,922,427	2,446,157.23	5,279,748	21,488.06
626	17,370,051	119,379.57		
627	5,250	94.65		
628	138,400	920.72		
629	1,454,659	9,938.14		
630	42,115,069	251,918.16		
631	43,264,332	81,454.23		
Total	994,300,349	6,267,758.09	5,279,748	21,488.06

	Sales	Revenue
Total sales:		
Firm	994,300,349	$6,267,758.09
Nonfirm	5,279,748	21,488.06
Total	999,580,097	6,289,246.15

Missouri River Basin project, western division, calendar year 1956

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	123,329,388	$844,156.85		
621	145,600	25,815.20		
622	487,556,588	3,161,221.99		
624	448,265,369	2,782,033.86	5,690,323	$21,977.57
626	17,511,960	121,924.81		
627				
628	143,040	879.45		
629	1,589,602	9,885.82		
630	44,275,051	265,633.60		
631	49,617,578	95,791.27		
Total	1,172,434,176	7,306,342.85	5,690,323	21,977.57

	Sales	Revenue
Total sales:		
Firm	1,172,434,176	$7,306,342.85
Nonfirm	5,690,323	21,977.57
Total	1,178,124,499	7,328,320.42

Missouri River Basin project, western division, calendar year 1957 (January through March, inclusive)

Account No.	Firm sales	Revenue	Nonfirm sales	Revenue
620	34,437,525	$232,799.05		
621	183,500	6,425.75		
622	108,213,759	693,029.62		
624	85,226,319	530,303.36	1,295,895	$5,161.91
626	4,850,947	33,056.22		
627				
628				
629	607,999	3,527.12		
630	10,930,606	64,716.26		
631	16,916,056	31,907.74		
Total	261,366,711	1,595,765.12	1,295,895	5,161.91

	Sales	Revenue
Total sales:		
Firm	261,366,711	$1,595,765.12
Nonfirm	1,295,895	5,161.91
Total	262,662,606	1,600,927.03

North Platte project

1954 (APRIL—DECEMBER INCLUSIVE)

	Sales (kilowatt-hours)	Income
Firm	49,343,685	$333,075.95
Firm sales breakdown account No.:		
620	25,938,154	166,729.24
622	18,568,845	125,273.69
629	154,613	1,235.89
630	4,551,838	39,277.16
631	130,235	550.06
	49,343,685	333,075.95

North Platte project—Continued

1955

	Sales (kilowatt-hours)	Income
Firm	69,601,995	$467,145.15
Firm sales breakdown account No.:		
620	35,753,047	231,817.17
622	25,785,223	173,668.63
629	294,194	1,725.94
630	7,503,102	58,401.43
631	266,429	1,531.98
Total	69,601,995	467,145.15

1956

Firm	83,979,432	$548,313.06
Firm sales breakdown account No.:		
620	37,476,170	240,863.70
622	38,754,059	247,454.77
629	280,655	1,641.13
630	7,226,633	56,962.46
631	241,915	1,391.00
Total	83,979,432	548,313.06

1957 (JANUARY-MARCH INCLUSIVE)

Firm	26,417,035	$168,298.28
Firm sales breakdown account No.:		
620	9,917,739	63,690.06
622	14,412,438	89,058.73
629	114,387	655.95
630	1,881,760	14,391.93
631	90,711	501.61
	26,417,035	168,298.28

NOTE.—No nonfirm sales.

Senator MURRAY. It is not the belief of the chairman that these 2 or 3 days of hearing will necessarily close study and hearings on the subject, but rather outline the problems and contentions which are involved. After study of testimony given at this time, the committee may want to call department witnesses or others to clarify problems, provide additional facts, and make recommendations.

I wanted to call on the distinguished chairman of the Public Works Committee, Senator Chavez, for his comments. However, Senator Chavez is not able to be here this morning.

The distinguished Senator from Oklahoma is here, Senator Kerr. Senator Kerr, will you comment at this time?

Senator KERR. Mr. Chairman, I am honored to be here and to participate in these hearings. I have been specially impressed by the statement that you have just made, laying down the principle that the best interest of the country will be served by finding the best solution to this problem from the standpoint of meeting the needs of all, rather than to inspire or provoke a controversy by those, all of whom are blessed and who, in being blessed, can make their greatest contribution in a cooperative attitude that will let us find that solution which will be the most beneficial to all.

I will have further remarks to make as we go along, but until the chairman of our committee has spoken, I will say no more.

Senator MURRAY. Thank you, Senator, for your very fine statement.

Does any other Member of the Senate or the House here this morning wish to make any statement at this time?

I have received word this morning that the distinguished Senator from North Dakota, Milton Young, who has contributed a great deal to the constructive development of the Missouri Basin and farm legislation will be unable to be present this morning. He will file a statement later, but I am truly disappointed that other work makes it necessary for him to be absent.

The next witness listed is an able new Congressman from Iowa, the Honorable Merwin Coad, of Boone, a native of Cawker City, Kans., another of our Missouri River Basin cities.

Mr. Coad?

STATEMENT OF HON. MERWIN COAD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA

Representative COAD. Mr. Chairman, my name is Merwin Coad. I represent the Sixth Iowa District in the House of Representatives from the State of Iowa. The Sixth District of Iowa is composed of 15 counties in the northwestern and north central section of Iowa.

Most of this area is rural. It is natural, therefore, that my primary interest in the matter before your committees is the interest of my rural constituents. Most of this area receives its electric service from rural electric cooperatives, financed by the Rural Electrification Administration.

I cannot speak too highly of the Rural Electrification Administration program and what it has done for the the rural people of the country as a whole, and specifically for that part of Iowa which I represent.

I know that you gentlemen are aware of that program, and that you know the story at least as well as I do. I will, therefore, not take your time to tell you about the importance of that program to the farmers and of the great benefits that it has brought to the rural communities. But I do plead with you to keep in mind at all times during the consideration of the problem before you how important that problem is to the rural areas of the Missouri Basin.

In the part of Iowa that I represent, the Missouri River Basin makes one very important contribution, and that is that it makes available to the farmer, through his rural electric cooperative, the benefits of low-cost power.

In 1956 alone, it is estimated that the rural electric cooperatives in my area saved more than $200,000 through their ability to purchase low-cost power at wholesale instead of purchasing it from the private utilities. Actually, these benefits should increase as the use of electricity by the farmers increases, but in the existing circumstances, there is a very real danger that the benefits will decrease rather than increase, unless Congress does something about it.

The area of Iowa that I represent is threatened with a power shortage within the next 2 years. Unless a solution is found and adequate supplies of low-cost power are made available, the farmers will have

to curtail their use of electricity. They may be able to buy additional power that they will need from private sources at 2½ times the cost of their present power. That is hardly a solution to the problem that they face.

It seems to me that there is only one way to look at this problem. Plans must immediately be made and carried out to secure for these rural areas all of the power that they will need at prices which they can afford to pay.

I am not an engineer, but I do have a general knowledge of the situation. The information which has been given to me from very reliable sources is that there are two approaches to this problem which must be taken:

(1) Slack water navigation: By resorting to slack water navigation, we not only help to preserve the water for hydroelectric generation, but we also improve its use for navigation. I am even told that proper slack water navigation would improve flood control.

(2) Every effort should be made to firm up the hydroelectric power with steam power. I am informed that this can be done economically in this area primarily because of the large supply of low-cost lignite, which is available in abundant supply in North and South Dakota. I also understand that it is good economics for the Government to firm up its hydro power because then it will have a great deal more firm power to sell at the higher prices which firm power receives.

I cannot understand why this has not actually been gone into by way of an outright program before. When the needs of the people require it, and when it is good economics, I cannot see any real reason why it has not been done in the past or why it should not be done in the immediate future.

These are two long-term solutions which seem desirable and necessary.

In the meantime, of course, there is the problem of how to use the water which is not sufficient to meet both the power generation needs and the navigation needs. I sympathize deeply with the navigation people. I should like to see their problems solved. But I cannot see that their need is as great as the need of all of the people who would be affected by an inadequate supply of electricity.

Therefore, during the period when there will not be enough water to fully meet the needs of both power generation and navigation, I firmly believe that the needs of power generation must be met first.

This is a position which I believe must be taken as a matter of sound judgment and policy. But it is my understanding that in addition to it being a matter of sound policy, it is a requirement of the Flood Control Act of 1944. The Flood Control Act of 1944 specifically provides that water shall be used for navigation only to the extent that it does not conflict with certain other uses, among which is the use for industrial purposes. Clearly, the generation of power is an industrial purpose. Therefore, it is a matter of law that the water shall first be used for generation if needed before it is used for navigation.

In closing, I would like to join my fervent plea with that of my rural electric friends and constituents that your two committees immediately proceed to provide slack water navigation and firming steam power for the Missouri River Basin and, until these results can be accomplished, I urge that you instruct those now responsible for the

administration of the projects in the Missouri River Basin to operate them in accordance with the law and sound judgment and to provide fully for power needs before diverting any of the water for navigation.

I thank you very much for giving me the privilege of making this statement.

Senator MURRAY. Thank you very much for your very interesting statement.

Are there any questions to be asked of the Congressman?

Senator ANDERSON. Did you quote the provision of law where you said that the use for generation came before the use for navigation?

Representative COAD. That is the flood-control act.

Senator ANDERSON. Would you express that clearly?

Representative COAD. That is the flood-control act of 1944.

Senator ANDERSON. Did you quote from it?

Representative COAD. No; I did not. I just merely made reference to it. I am sorry I do not have a copy with me.

Senator ANDERSON. Do you think the establishment of steam plants which, I assume, would have to be Government owned in that area, would be a simple matter as far as getting legislative authority? I say that knowing that, I believe this is your first term in here and we have had long battles over steam plants and TVA elsewhere.

Representative COAD. I was not aware that I indicated that they would have to be Government owned. What I thought perhaps best would be that the REA cooperatives could, through the facilities of the Rural Electrification Administration, secure the loans, and that they would own them and operate them.

Senator ANDERSON. That is what I wanted to find out.

Representative COAD. They would not, thereby, have to be Government owned.

Senator CASE. Mr. Chairman?

Senator MURRAY. Senator Case?

Senator CASE. Congressman Coad, have the rural electric cooperatives made an application for a loan for that purpose?

Representative COAD. I am not aware that they have.

Senator CASE. The language in the 1944 Flood Control Act to which you refer was cited by the chairman in his opening statement, but I think, in response to the questions of Senator Anderson, the answer, so far as the specific prohibition on the use for navigation in certain waters, rests upon the interpretation of that so-called O'Mahoney-Millikin amendment, which reads, in paragraph b:

> The use for navigation in connection with the operation and maintenance of such works herein authorized for construction of waters arising in States lying wholly or partly west of the 98th meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the 98th meridian of such waters for domestic, municipal, stock water, irrigation, mining, or industrial purposes.

In other words, the language does not say that all water is reserved for industrial purposes, but it would depend upon the interpretation, I think, of "beneficial consumptive use."

Senator ANDERSON. I would think so, also. That is why I asked the question. I think it varies. I think in areas where you have a lot of falling water, or a very abundant supply of very cheap water, you would have, disproving that the right to generate electricity came

ahead of all of these. I think it might depend a little bit upon a particular location. That is why I asked if there was any other specific language that put generation of electric current ahead of navigation.

I can understand industrial use for the sake of supplying drinking water or necessary water to the boilers of an industrial plant, and I know that domestic water supplies and irrigation water supplies come ahead of either navigation or generation. But I was not sure about the generation of current.

Representative COAD. I think it is a matter of interpretation.

Senator ANDERSON. We wanted your opinion on that.

Senator BARRETT. Senator, you did not mean to exclude from your possibilities there the term "irrigation" in that amendment of Senator Millikin and Senator O'Mahoney. It seems to me that, historically, the generation of power incidental to the construction of irrigation works would certainly be a just assumption that, under irrigation, the development of power, incidentally, to an irrigation project, would be superior to the use of the water for navigation purposes also.

Senator CASE. That, I think, again is just a question of interpretation.

Mr. Chairman, I might say, if you will indulge me for a moment, that I approach these hearings with a great deal of personal interest because of my having followed this program from its inception. The study by the Corps of Engineers for the building of dams in the Dakotas started with a resolution which I introduced in the House of Representatives and which was adopted, and under the directive of which then Col. William Hoag instituted studies in March of 1940. That resolution specifically directed that a study be made for the development of hydroelectric power from the Missouri River for the beneficiation of manganese and other purposes.

Colonel Hoag started on those studies. When the war came on, he was transferred to the building of the Alcan Highway. Subsequently, after 1 or 2 officers in the meantime, Col. Lewis A. Pick was assigned as the division engineer at Omaha, Nebr. He had a very large military construction program underway.

Along in late 1941, I believe it was—I would have to check the date on that to be sure—he was in South Dakota in connection with that military-construction program and we fell into a discussion of this. He told me at that time that he wanted to pick up the work on the study of the Missouri River as soon as he got that military-construction program in hand. He had, I think, the largest military-construction program of any division engineer in the country right then.

When he got underway on the program, he decided that the thing to do was to make a comprehensive study and not confine it to the development of dams in South Dakota, a comprehensive study which would take in the purposes served by Fort Peck.

Shortly before the report was made, if my memory is correct, he came to the conclusion, or perhaps he came to the conclusion earlier but he expressed it shortly before this report was completed, that the best way to secure a comprehensive authorization would be to base it upon flood control.

Congressman Carl Curtis, of Nebraska, then Congressman and now Senator, introduced a resolution to authorize a study and report from the standpoint of flood control. Senator Curtis was then a member of the House Committee on Flood Control. That was before the committees were reorganized.

So, the resolution to which his report was a response was a resolution directing a study for purposes of flood control and other purposes.

I think Colonel Pick or General Pick's idea was that flood control was a broader purpose and would serve for laying a comprehensive program.

Then, as you know, Mr. Sloan, Glen Sloan, who was the engineer for the Bureau of Reclamation, made his report, which came in, I think, just a couple of days before the House committee reported a bill embracing the Pick plan. The House passed an omnibus bill carrying an authorization for the Pick plan. Then when it came to the Senate, the Senate, under the joint work of the Committees on Flood Control and on Interior, I believe, conducted hearings.

Senator Overton conducted the hearings most of the time. There were several meetings throughout the Mississippi and Missouri Valley that summer, with the result that the two plans were put together under the spirit of the O'Mahoney-Millikin amendment. It became the Pick-Sloan plan that was authorized in September 1944.

This key paragraph to which you alluded was the one that made possible the enactment of the legislation. I know that, historically, power had a large part to play in the origin of it, but the broader base of flood control was adopted because the Congress had adopted a policy authorizing projects when flood control was the main purpose.

Senator ANDERSON. I appreciate very much the statement. Senator Barrett put his finger on what he knew was my interest in this thing. I wanted to be sure that we did not fail to remember that these waters are, we hope, primarily useful for domestic purposes, and then maybe useful for irrigation, and after that comes the industrial uses in the generation of power.

If it is tied to irrigation for that purpose, it is certainly a very primary purpose, but not the generation itself.

Senator BARRETT. I quite agree with the Senator from New Mexico. It seems to me that we must qualify the term irrigation with this "beneficial consumptive use." Necessarily, we would have to rely on that here.

I do not recollect in the debates in the House, anyway, that there was any disposition on the part of anyone to controvert the use of that water, the falling water, for the generation of power, incidental to irrigation, at least.

Senator CASE. I think the point made by the Senator from Wyoming, that any power that is generated incidental to the purpose of irrigation, is clearly protected here.

Senator BARRETT. There is no question about that.

Senator CASE. But for general generation, for other purposes, there might be some question.

I have a letter from the Engineers in which they distinguish between beneficial use and beneficial consumptive use. They probably will develop that when they testify.

Senator ANDERSON. Thank you, very much.

Senator MURRAY. Thank you, Congressman.

Senator HRUSKA. May I ask the Congressman a question with reference to his designation of industrial purposes as including generation of power?

Is it your idea and understanding, Congressman, that the use of water for generation of electric power is a consumptive use?

Representative COAD. Do you mean for REA cooperatives?

Senator HRUSKA. For anybody. When water is used for the purpose of generating electric power, is that a consumptive use?

Representative COAD. It is not a consumptive use of water in the sense that the water is consumed, no. But it is a consumptive use of the energies of water. If that would deplete the energy of water to be used in any other way, then it is a consumptive use.

Senator HRUSKA. Of course we are getting into semantics that are pretty involved.

The purpose of my question is to find out whether or not, within that subparagraph b of the O'Mahoney-Millikin amendment to which the chairman has referred and quoted in his statement, whether or not the use of water for the purpose of generating electricity falls within that phrase "Beneficial consumptive use", which is used in that subparagraph.

Senator BARRETT. You did not ask him if it was beneficial.

Senator HRUSKA. First of all, consumptive.

Senator BARRETT. But it does not say just consumptive. It says beneficial consumptive use.

Senator HRUSKA. My question was consumptive. I am leading to the second part of the question, as to whether or not it is a beneficial consumptive use within the meaning of the O'Mahoney-Millikin amendment, in your concept of the thing, because of your statement that the generation of power is an industrial purpose.

Representative COAD. Well, in my definition, I would say that the beneficial consumptive use of water strictly for the purpose of navigation would qualify within that meaning. Yet it seems to be a matter of which is more beneficial. I think it is a more consumptive use of water to use it for the purposes of navigation only where you let it out of these dams in wholesale lots without having first generated electricity therefrom. The Missouri River has been maintained by the Federal Government as a channel for navigation purposes, in many of the years past, without actually looking at what program would benefit the most and greatest number of persons.

Senator HRUSKA. That is where we would get into the field of revising and amending the O'Mahoney-Millikin amendment, if we went from that standpoint.

Representative COAD. It seems to be a matter of priority here, but it depends on the amount of water used, whether you are using water for beneficial consumptive use beyond the degree of what would be fair play.

Senator HRUSKA. I just wanted your idea on that in view of your statement.

Senator CARROLL. Mr. Chairman, I would like to ask a question, if I may.

You represent the Sixth District in Iowa?

Representative COAD. That is right.

Senator CARROLL. That is a rural community?

Representative COAD. That is right. The largest town is less than 30,000.

Senator CARROLL. Are you west of the 98th meridian?

Representative COAD. No, Iowa is not.

Senator CARROLL. What is the source of your low-cost power?

Representative COAD. Well, the source of our low-cost power to which I referred was that which comes from the Missouri River Basin projects. All of my Sixth District is not covered by that, however.

Senator CARROLL. Thank you very much for a fine statement, Congressman.

Senator CASE. Congressman Coad, do the REA's in your district get Missouri River power today?

Representative COAD. Some of them. In 1 county and now going into 2 counties, we are affected by it, yes. We use it.

Senator CASE. What would they be, your westernmost counties?

Representative COAD. That is right.

Senator CASE. What counties are they?

Representative COAD. Crawford, and next will be Carroll County. I understand a line is to be built into Carroll County.

Senator CASE. Crawford County is reached today?

Representative COAD. Yes, it is.

Senator CASE. What is the principal town in Crawford County?

Representative COAD. Denison.

Senator CASE. Mr. Chairman, the clerk of the Public Works Committee calls my attention to the fact that it has been the practice in authorization bills which have carried any augmentation of the original dollar authorization for the Missouri River program to repeat this O'Mahoney-Millikin amendment, the reason being that in the original language it referred to such works herein authorized. The original authorization for the Pick-Sloan plan, I believe, carried $250 million for each side, $250 million for the Bureau of Reclamation and $250 million for the Corps of Engineers. It was either $200 million or $250 million. That authorization has long since expired, of course.

In the omnibus bill which we passed in the Senate, S. 497, we repeated the language in order that the $200 million additional authorization both for the Corps of Engineers and the Bureau of Reclamation would be bound by this same language.

Senator MURRAY. Thank you.

Are there any other comments on this?

If not, thank you, Congressman.

The next witness will be Albert C. Hauffe, president, South Dakota Rural Electric Association.

STATEMENT OF A. C. HAUFFE, SECRETARY-TREASURER, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Senator MURRAY. You may state your full name for the record.

Senator CASE. Mr. Chairman, might I have the privilege of introducing this witness? Mr. Hauffe comes from my State of South Dakota. He has been very active in the rural electrification movement, not only in South Dakota but nationally. He is a farmer and highly respected in my State.

Senator MURRAY. Thank you.

Mr. HAUFFE. I might add, Senator, that I come from north of the Iron Curtain, too.

With that introduction, Senator Case, thank you, I am a director of the National Rural Electric Cooperative Association, of Washington, D. C., and serve as the secretary-treasurer of that organization.

The NRECA, as you know, represents almost 1,000 rural electric cooperatives, nationwide, having a rural membership of over 3.5 million.

I am here primarily as a farmer and an electric consumer in the Missouri Basin, and as the president of our State association of electric cooperatives.

I, along with other representatives of the States of South Dakota, North Dakota, Minnesota, Montana, Iowa, and Wyoming, am here today because we wish to call to your attention some of the promises we feel have been broken by our Government in managing the flow of water in the Missouri River especially as regards the storage of that water behind the major dams on the main stem.

The people of South Dakota accepted the Pick-Sloan plan of river development, reluctantly. However, we did expect that once the dams were completed, the whole plan would be managed to the best interests of the people of the basin as well as to achieve maximum power sales revenue to amortize the huge investment that the people of the United States have in the main stem dams. We had also assumed that, in managing the flow of water out of the dams, the Government would give serious consideration to the States of South Dakota and North Dakota which furnished the sites for the dams.

We are disappointed and discouraged about the management of the flow of water out of our State and the failure of the Bureau of Reclamation to develop the maximum of firm power for the best interests of Uncle Sam and for the electrical needs of the people of the basin. Both the Bureau of Reclamation, and the United States Army Corps of Engineers share responsibility for the Missouri River development and management.

We have always felt that once Congress had all the facts it would be on the side of the people, and we have also always felt that the Congress is our friend. The Congress has appropriated funds for the development of our great basin and has authorized REA loan funds for bringing electricity to our farm people.

This hearing was stimulated by a joint resolution passed by the Legislatures of South and North Dakota, and, I understand, Montana, requesting a Senate committee investigation of the administration of the Flood Control Act of 1944, particularly the O'Mahoney-Millikin amendment to this act.

At this time, I offer for the record copies of the resolution passed unanimously by both the senate and the house of the South Dakota Legislature. I believe those are already in your hands. (The resolution appears at p. 2.)

The officials of the South Dakota rural electric systems have never advocated that less water be released than is required for downstream consumption purposes—nor have we even suggested holding back of such water. We want our great cities and towns, as well as industries, to have all the water they need for their orderly growth and development. Water is just as precious to them as it is to the farmers of South and North Dakota upon whose land the water falls and finds its way downstream.

The O'Mahoney-Millikin amendment which sets forth the priority for the use of water in the Missouri River reservoirs, by its nature, involves the broad scope of managing the development of both the land and the water resources of the basin.

Senator ANDERSON. Can I stop you there for just a moment?

I am disturbed by the last sentence on the preceding page, "Water is just as precious to them as it is to the farmers of South and North Dakota upon whose land the water falls and finds its way downstream."

How much of the water that passes Pierre, for example, falls in the State of South Dakota and how much of it falls out in other States, or how much of it goes by Yankton that has fallen in North and South Dakota?

Mr. HAUFFE. I could not answer that, Senator.

Senator ANDERSON. Does not a great deal come from the roof States?

Mr. HAUFFE. It comes from North Dakota and Montana, I believe. Of course, we do have quite a few rivers running into that.

Senator CASE. Yes; the western tributaries in the western half of South Dakota, the White, the Cheyenne, the Moreau, and the Grand, are all major tributaries.

Mr. HAUFFE. And in North Dakota you have the Red and the Heart.

Senator ANDERSON. I lived along the James River, for a good many years, and on the Vermillion River, and had land at Okaton, and our great complaint was that water did not fall on South Dakota.

Senator BARRETT. Wyoming contributes quite a little bit to it, and Montana does, also.

Senator CASE. I think Montana is the greatest contributor.

Senator ANDERSON. That is why I thought we better remember that. If we start pinning these things down to rights, the roof States have some rights.

Senator CASE. This amendment was intended to protect the roof States.

Mr. HAUFFE. We have been looking forward to this opportunity of being heard for several months. To avoid unnecessary duplication, the witnesses that will present our viewpoint have developed a sort of informal pattern to conserve the time of the subcommittee as much as possible.

Briefly, these witnesses, each a specialist in his field, will discuss the following.

1. Operation and management of the mainstem dams on the Missouri River, and present policies and their effects. We are firmly convinced that present operation of these mainstem dams is such that much of the benefits are not realized. We feel that our real hopes and dreams for this great development have miscarried and that already the main objectives have been circumvented.

2. These witnesses will also discuss the operation and management of the Federal power system in the eastern division of the Missouri River Basin.

As you hear these people, I am sure that you will be convinced that this phase of the Missouri River development is also being operated and managed in a manner such that many of its real benefits are being wasted, and that a few special groups are benefiting from the availability of large amounts of secondary and dump power.

Our witnesses, I am sure, will not only present some of the facts which they believe indicate mismanagement, but will recommend positive constructive measures which would, if applied, salvage the great benefits to the basin that were envisioned by such farsighted and distinguished gentlemen as General Pick and Mr. Sloan, and the great leaders the past two decades in the United States Congress.

As farmers, and as officials representing other farm and town people, we come before these committees as free, willing, and cooperative witnesses. Our expenses as well as those of the professional witness will be paid by the rural electric cooperative associations; in other words the farmer is paying the bill for this through his monthly light and power bills.

When you have heard our side of the story, we are confident that you will recognize the need for prompt action by the Congress.

We feel privileged and honored as citizens of our great country for the opportunity to appear before you.

The Federal power development in the Missouri River Basin has meant rural electrification of our farm homes at a reasonable price. Without the benefit of Federal power, I will venture to say that many farm homes today would be without the benefits of this wonderful resource. They could not afford it from sources outside of our Missouri River development.

The combination of a fine partnership between rural America and our Government, with its river development and great transmission lines radiating from the dams, has meant modern living on our farms. The farm people in turn have spent billions during the past 20 years learning to live like first-class citizens. And the farm people have contributed greatly to our country's prosperity.

The fine part of it all is the great confidence which the Congress has manifested in our farm people. This confidence has not been misplaced or misguided. We are current on the repayment of loans to the REA. And through the purchase of the low-cost power from the great dams—the firm power—the rural people are retiring the millions the taxpayers of our country have invested in the dams and the power generating facilities.

On behalf of the South Dakota Rural Electric Association, I wish to thank you very kindly for this opportunity to be heard.

Senator ANDERSON. Will you indicate the program of prompt action that you think the Congress should take? You say "When you

have heard our side of the story, we are confident that you will recognize the need for prompt action by the Congress."

If we are going to be able to recognize it, what do you think prompt action should be?

Mr. HAUFFE. Senator, these people that are going to follow me—I just got off the tractor Monday morning—will answer that for you.

Senator ANDERSON. But you are here because you are interested in this problem.

Mr. HAUFFE. That is right, sir.

Senator ANDERSON. What do you want done?

Mr. HAUFFE. I want the management of the great basin and water development, and the development of power, firm power, to the best interests of the people in the basin and Uncle Sam, and the taxpayers of the United States.

Senator ANDERSON. That would be a little hard for a Congressman or a Senator to pin right down.

What would you like to have us do?

Mr. HAUFFE. Well, I do not know.

Senator ANDERSON. That makes it a little hard for us, does it not?

Mr. HAUFFE. Yes. I understand, Senator.

Senator ANDERSON. If you studied it and cannot come up with anything that you would like to have us do, it will be pretty hard for us to sit here and decide what to do about it, will it not?

Mr. HAUFFE. I have not studied it thoroughly, Senator, as the witnesses who will come after me.

Senator CASE. Did you hear Congressman Coad testify?

Mr. HAUFFE. Yes, sir.

Senator CASE. Congressman Coad's district lies wholly east of the 98th meridian. The 98th meridian runs in the vicinity of Yankton, S. Dak., if my recollection is correct.

Senator ANDERSON. I think it is closer to Mitchell.

Senator CASE. I do not think so.

Mr. HAUFFE. And then it runs through about Marshall, Minn., doesn't it?

Senator BARRETT. It is west of Omaha, I believe.

Senator CASE. It is a little west of Omaha, or almost through Springfield, S. Dak. That would put it between Yankton and Mitchell, perhaps.

In any event, Congressman Coad suggested that he would like to see the lignite in the Dakotas developed in order that the power of the Missouri River might be firmed up and taken east of the 98th meridian.

You live very close to the lignite fields. Have you any feeling or conviction about the use of the lignite for firming up the power in the Missouri River?

Mr. HAUFFE. Yes, I do have. I would like to see the benefits of those vast amounts of coal out there used to firm up river power. I believe the east river people have explored that. They have hired some engineers to make a study of the possibility of that.

Senator CASE. Are you familiar with the proportion of power from the major dams that will be firm power and what will be dump power or secondary power?

Mr. HAUFFE. No, sir, I am not.

Senator CASE. Mr. Chairman, for background, if I may offer this, I think that the Gavins Point Dam, which is the lowest dam, is practically all firm power, and that is in the neighborhood of about 110,000 kilowatt generator capacity.

The Randall Dam is in the neighborhood of 320,000 kilowatts, more than half of which is firm power.

The Oahe Dam, which is the large dam now under construction, is in the neighborhood of 480,000 kilowatt capacity.

But about 52 percent of that will be secondary or dump power.

So this matter of firming up power does present a real problem. In the largest of the dams, approximately half of its output would be secondary or dump power.

Senator ANDERSON. I marked down in your statement, Mr. Hauffe, that these witnesses are going to show us that special groups are benefiting from the availability of large amounts of secondary and dump power. I assume you were not going to testify on that yourself?

Mr. HAUFFE. No, sir.

Senator ANDERSON. What sort of groups will they be that will be benefiting?

Mr. HAUFFE. That are benefiting?

Senator ANDERSON. Yes.

Mr. HAUFFE. I would say that any municipality or a private power company that has a steam generating plant gets the benefit of the secondary dump power. The REA's cannot buy.

Senator ANDERSON. You would not object to a municipality buying it, would you?

Mr. HAUFFE. A municipality if it has a generating power can purchase secondary power in the amount of its capacity to generate firm power.

Senator ANDERSON. You are not in competition with REA's and municipalities, are you?

Mr. HAUFFE. No, sir.

Senator ANDERSON. Are you not both preferential customers?

Mr. HAUFFE. Yes.

Senator ANDERSON. So they are not the special groups that you referred to?

Mr. HAUFFE. No.

Senator ANDERSON. Thank you.

Senator MURRAY. Thank you very much.

Mr. HAUFFE. Thank you.

Senator MURRAY. The next witness will be Mr. Joe Grimes, of South Dakota.

STATEMENT OF J. W. GRIMES, CHIEF ENGINEER AND EXECUTIVE OFFICER OF THE SOUTH DAKOTA WATER RESOURCES COMMISSION

Senator MURRAY. Will you state your full name?

Mr. GRIMES. My name is J. W. Grimes. I am chief engineer and executive officer of the South Dakota Water Resources Commission. I represent Gov. Joe Foss in the matter of your inquiry into the use of Missouri River waters stored in reservoirs constructed under the

authorizing provisions of the Flood Control Act of 1944, Public Law 534.

Senator CASE. Mr. Chairman, if the witness would not object, I would like to say also that Mr. Grimes, for a number of years, was the manager of the State office of the Bureau of Reclamation at Pierre, S. Dak. He was on the Bureau of Reclamation staff for a great many years. We know in South Dakota from personal experience that he is one of the best informed men in the West on the potentialities of the Missouri River development. He knew it as an official and executive for the Bureau of Reclamation. He was so good that when the State of South Dakota determined that it had an interest that warranted employing an executive officer for a water resources committee they pried him away from the Bureau of Reclamation.

Senator MURRAY. Thank you, Senator Case.

Mr. GRIMES. Thank you, Senator Case.

I have a prepared statement for your record. I would like to go through it and amplify certain portions of it as it seems appropriate.

Senator MURRAY. You may proceed as you wish.

Mr. GRIMES. In my presentation, I wish to establish certain premises which, I am sure, are generally understood by the people of the Missouri River Basin to be the meaning and intent of the authorizing act and which, I am less sure, are the bases for the preparation of definite plans, construction of works, and operation of completed facilities as this tremendous development materializes.

Secondly, I wish to outline some of the interpretive policies established by the responsible Federal agencies and cooperative agreements worked out by organizations representing the entire river basin as these factors are understood, generally, by the people of the Missouri River area.

Thirdly, I wish to relate some items of dissatisfaction, complaint and fears concerning Missouri River Basin development which are directed to South Dakota State government.

Fourthly, I wish to comment briefly regarding the overall situation as I see it.

And, lastly, I wish to offer recommendations designed to avoid reference of such controversial details to the Congress of the United States.

Basic provisions of the Flood Control Act of 1944 provide that four principal objectives, flood control, irrigation, navigation, and power, shall be accomplished by the creation of structures and facilities for control of the waters originating in the Missouri River watershed.

Miscellaneous other beneficial results of water conservation and control are recognized, such as domestic, municipal, and industrial water supplies, recreational opportunities, fish and wildlife preservation, and others less definite, but such miscellaneous benefits shall be secondary to the four primary objectives in the sense that they are byproducts only, not justification in themselves for Federal investments.

Preference is provided for beneficial consumptive uses of water over navigation use of the waters arising in the States wholly or partly west of the 98th meridian. The development shall be planned,

constructed, and operated as an integrated basinwide, multiple-purpose project in general conformity with supporting documents, Senate Document 191 and House Document 475, as coordinated by Senate Document 247.

Primary responsibility is vested in the Department of the Interior, Bureau of Reclamation, and the Department of the Army, Corps of Engineers. Expenditure of appropriated Federal moneys by the Secretary of the Interior are to be made in accordance with the Federal reclamation laws including reimbursement to the Federal Treasury, irrigation costs during a period of 40 years without interest at rates not to exceed the ability of irrigators to pay, power costs during a period of 50 years with 3-percent interest—I might mention there that that 50 years at 3-percent interest has become so firmly ingrained in our understanding in the Missouri Basin that I put it down as a matter of law, and upon reading it before making my testimony today I do not believe that it is a matter of law, so I wish that explanatory statement—and miscellaneous purposes costs during a period of 40 years with interest at such rates as the Secretary of the Interior shall determine.

Marketing of power by the Secretary of the Interior shall be at such rates as will return the Federal investment in power facilities including that portion of irrigation costs which is in excess of the irrigators' ability to pay, shall give preference to public bodies and cooperatives, and shall be in accordance with good business principles.

And I would like to add there that it is a very, very important understanding that we have in the basin that it is the power investments and those costs allocated to power with 3-percent interest that will be repaid in 50 years, but that the rates for the power sales shall be sufficient to return, within whatever the payment period is that is provided by Congress, the portion of the irrigation cost which the irrigators themselves cannot pay.

I have seen many times references and particular wording which to me sometimes infer that it is only the power costs, the allocation to the power itself with interest, that should be repaid from the power revenues. That is not our understanding as we look at it in the basin, the total Missouri River Basin development. I mention it because some carefully worded reports and releases would indicate that only the power investment itself and the power allocation costs would be repaid.

Senator ANDERSON. Are you quoting now from the provisions of the Flood Control Act or some other provisions?

Mr. GRIMES. The Flood Control Act makes reference to the expenditures by the Secretary of the Interior, and they shall be in accordance with the reclamation laws. It is in the reclamation laws that these particular concepts come to us, not directly from the Flood Control Act itself.

Senator BARRETT. Mr. Grimes, I think you are making a very valuable contribution here to this controversy. It seems to me that you are getting to the very important point here, when you refer to the fact that the Missouri Basin works is a project in itself, one complete entity, and the reclamation projects are developed as a part of the whole basin project.

Any part that the irrigators cannot pay on any particular project will be assumed by the power pool in the Missouri Basin.

Mr. GRIMES. That is the way we understand it in the Basin.

Senator BARRETT. And, consequently, when the Congress by their appropriation bills every year for the Missouri Basin project take into consideration the fact that the particular unit or project is such that the farmers can pay back so much of the money, then the balance of it is charged to the power pool of the basin. The Congress, therefore, year after year recognizes the fact that the power of the basin is an integral part of the irrigation works.

Mr. GRIMES. That is very true.

Senator BARRETT. Therefore, you come right back to the proposal that the O'Mahoney-Millikin amendment, when it refers to irrigation and gives that precedence over navigation, that the Congress has repeatedly asserted the fact that power has an economic part, certainly, of all the irrigation projects, because I do not know of any of them that will pay out themselves. They all rely on the power pool of the whole basin. The Congress recognizes the fact that power is a part of the irrigation work.

Mr. GRIMES. That is right. And as power is developed in conjunction and a vital part of an irrigation project, we can separate that power used into two parts; first of all, we need that power, especially in our project in the Missouri Basin to actually use power to provide the irrigation water to the lands. In other words, the pumping of water is a very vital part of our irrigation in the basin. So we have that power which is associated with actual project use.

Senator CASE. Mr. Chairman, may I ask a question on the same point?

Mr. Grimes, can you cite the provision in the law which makes the power users in the Missouri River program pay for a part of the irrigation cost?

Mr. GRIMES. It is associated with the reclamation laws. I am sorry that I cannot quote the actual provision of the law.

Senator ANDERSON. Mr. French is now looking it up. I asked him to find the language.

Mr. GRIMES. My understanding is that that was incorporated in the 1906 amendment to the Reclamation Act.

Senator CASE. That may apply to reclamation projects as such, but the 1944 law says, in section 5:

> Electric power and energy generated at reservoir projects under the control of the War Department and in the opinion of the Secretary of War not required in the operation of such projects shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Federal Power Commission.
>
> Rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of electric facilities of the projects) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The Secretary of the Interior is authorized, from funds to be appropriated by the Congress, to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said projects available in wholesale quantities for sale on fair and

reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately owned companies. All moneys received from such sales shall be deposited in the Treasury of the United States as miscellaneous receipts.

Senator KERR. Does it say anything about interest on the amount being amortized?

Senator CASE (reading):

Rate schedules shall be drawn having regard to the recovery of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years.

Senator ANDERSON. That is why I asked Mr. French to come in, the attorney for the Interior Committee, because I was not familiar with the fact that when you build a power dam that you had a right and an obligation to charge for the remaining amounts that irrigators could not take care of, and put that in your power structure. I think you have maybe authority to fix rates, if you want to. But if you are going to be scrupulous, it seemed to me that you had to come back and charge only for the amount necessary to charge the power. I was trying to find your citation in law that would cover the other.

Senator BARRETT. If the Senator will yield to me, I do not think you are going to find any citation in the law.

Senator ANDERSON. Nor do I, but I would be happy to see it.

Senator BARRETT. But I still think that it is the law, for this reason: As I stated a moment ago, the Congress, by repeated appropriations year after year since the Missouri Basin was authorized, has appropriated money on the reports of the Bureau of Reclamation that they have established a power pool in that big project, the Missouri Basin project, and that they propose to pay for these individual irrigation projects in this fashion: No. 1, the farmers are called upon to pay that part which they are able to pay; No. 2, the balance is to be repaid from the power pool of the Missouri Basin projects.

It is true, as Mr. Grimes has indicated here, that power must repay its own cost with interest at 3 percent, and the irrigators do not have to pay interest on the part that is assigned for their own irrigation project. But the balance that they cannot pay has to be paid out of the pool.

The Congress passed these appropriation bills, and the appropriation bills were predicated on that theory, and, therefore, they have recognized and made that theory a part of the law, in my opinion. That is my side of the case.

Senator ANDERSON. I will state to the witness that those of us on the Interior Committee who are not lawyers have to make use of our lawyers like Senator Barrett very, very frequently. I will not get into an argument with him over what the law is. I will say that I was at least surprised by your statement that the marketing of power by the Secretary of the Interior shall be at such rates as will return the Federal investment in power facilities, including that portion of the irrigation cost which is in excess of the irrigators ability to pay.

Mr. GRIMES. Senator Anderson, you will note that in this statement, I have put down as we understand it in the Missouri Basin. I think that in all of these interpretations, and there have been a number of them, of the Flood Control Act, the interpretation has been put on

the statements and the provisions in the Flood Control Act, whereby the Secretary of the Interior shall have any moneys allocated to that department in accordance with the reclamation laws.

Historically, power has been used as a subsidy payment, to use those words, for irrigation costs.

Senator ANDERSON. And in the Colorado River Basin project that we just passed in a recent session, we would be in a tough spot if we could not use power revenues. But now you are dealing with flood control, and you have a great many flood control projects in the Pacific Northwest that have some irrigation potentialities.

Am I to understand that rates must be fixed so that if they ever bring in irrigation up in the Columbia Basin, the Secretary of the Interior must pay for the deficiency that exists by an advance in power rates? I think it is of some interest and importance because he may not plan to do that.

Mr. GRIMES. It is very important to us. In the Pacific Northwest, I am sure that a portion of the Columbia Basin project is being paid for by the power revenues from the Grand Coulee Dam.

Senator CASE. There is another paragraph in the 1944 act which I think should be read here. It is section 9, subparagraph c:

> Subject to the basinwide findings and recommendations regarding the benefits, the allocations of costs and repayments by water users made in said House and Senate documents.

And those 2 are the 2 to which Mr. Grimes has referred being the Pick report with the House number and the Senate number covering the Sloan report:

> The reclamation and power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the Federal reclamation laws (act of June 17, 1902, and 32 Stat. 388, and acts amendatory or supplementary thereto), except that irrigation of Indian trust and tribal lands, and repayment therefore, shall be in accordance with the laws relating to Indian lands.

Here is Mr. James Bradley, from the Office of the Assistant Secretary of the Interior. I have just asked him about this thing, and he says that there is some interpretation based upon that which supports, I think, what Mr. Grimes has said.

STATEMENT OF JAMES BRADLEY, GENERAL ENGINEER, OFFICE OF THE ASSISTANT SECRETARY OF THE INTERIOR

Mr. BRADLEY. Mr. Chairman, may I bring together two or three points?

I am James Bradley. My title is General Engineer in the Office of the Assistant Secretary of the Interior.

Mr. Chairman, Senator Case just said section 9 (c). I think it is important to regard first section 9 (a). This is a sort of stepping-stone type of connection. 9 (a) says the general plan for the Missouri Basin as set forth in House Document 475 and Senate Document 191—that is the significant reference there—is hereby approved, and the initial stages are recommended and authorized.

Senate Document 191, Mr. Chairman, included in the early pages a statement of the finances of the project, and in that statement of finances, there was included a pay-out plan in summary form that

included very materially the use of power revenues in aid of irrigation. So we feel that the——

Senator KERR. May I ask a question there?

Mr. BRADLEY. Yes, sir.

Senator KERR. Was that a plan which would commit the revenues generally, the power revenues generally, of all of the projects to help pay the irrigation costs of all of the projects, or is the commitment against power revenues of a project limited insofar as irrigation costs are concerned to the irrigation project created or served by the same project?

Mr. BRADLEY. Senator, in our opinion, since the document presented a total corps plus reclamation cost, and a total corps plus reclamation pay-out, that document certainly considered the basin as a whole.

Setnator KERR. Has there been any interpretation to that effect by a court adjudicating an element of that as a controversy before it?

Mr. BRADLEY. I know of no court case; no, sir.

Senator KERR. What is the basis of the interest charge? In listening to Senator Case read the act with reference to reimbursement of the cost of the power elements of the project, I did not hear anything with reference to repayment of the amortization of the cost plus interest.

Mr. BRADLEY. Senator, on flood control projects, and the section that he read, of course, was section 5, the flood control type of language, there is no reference to interest. We get to interest on such projects simply as an administrative determination of long standing—that that is fairly included within the term "cost" on power.

In reclamation laws, and this particular Missouri Basin——

Senator ANDERSON. Would you explain how long standing? This is an act of 1944. Was it before that, the understanding of how they were going to administer the act of 1944? How could they decide back in 1906 how they were going to administer the act of 1944?

Mr. BRADLEY. Senator Anderson, as far as the 1944 act is concerned, of course, the history of it starts with 1944.

Senator ANDERSON. In 1944, your section (c) deals with these water uses as well as section (a), and there was nothing in the documents. I am trying to find out when somebody files a document, and we say we generally approve it, do we have to now start back and go through it word for word to be sure we do not approve something that is going to require that the deficiencies that the irrigators may face have to be loaded onto the power cost in a certain period of time?

In the upper Colorado project, it may be 90 years or 100 years before some of these excess amounts are going to be available. I do not know what was in the original plans filed. I am beginning to worry, now, as to what might be in them, if it is true that the Department of the Interior can make such a decision and hold by it, because it is of long standing. What language do you find that says it has to be done this way?

Mr. BRADLEY. Senator, that carries us back to the act of 1939 on the reclamation side. The reclamation law specifically provides that the rates shall include a charge of 3 percent interest.

Senator KERR. Is that a provision of law that says any reclamation project which generates power shall be operated so that the power costs shall be recovered with interest?

Mr. BRADLEY. Yes, sir. And that same clause says further that the Secretary may assign for recovery from power revenues charges that would be allocated first to irrigation but beyond the ability of the irrigators to repay.

Senator KERR. Do you think that coverage of language is broad enough to apply to an authorization of flood-control projects?

Mr. BRADLEY. The quick and direct answer, Senator, is "Yes," in our opinion, in the Missouri Basin project.

If I may, I would like to say that there has been a great deal of head scratching over relying on this series of steppingstones. Senate Document 191, which considered this financial plan, is how we are administering it.

Senator KERR. It looks to me like there is a possibility that you are relying upon conclusion reached upon the basis of a number of implemented desires.

Senator ANDERSON. You use the quotation of 3 percent interest. Am I not correct that the Glen Canyon Dam is going to be on the basis of 2⅞ percent?

Mr. BRADLEY. Yes, sir.

Senator ANDERSON. Is it in violation of the law?

Mr. BRADLEY. It is considered that in all recent authorizations, where there has been an opportunity to lay before the Congress a specific proposal, the interest should be either the going cost-of-money rate or, when it was stabilized at about 2½ percent for so many years, that it be specifically set at 2½.

We have a number of projects at 2½, or between 2½ and 2⅞, when it is geared into an opinion by the Secretary of the Treasury as to the cost of money.

Senator ANDERSON. Then you are going back to the 1939 law for the 3 percent?

Mr. BRADLEY. Yes.

Senator ANDERSON. And that does not say 3 percent, does it? It might be 3 or 4 or 5 or 6?

Mr. BRADLEY. It says not more than 3 percent, as I recall it.

Senator ANDERSON. It says not less than 3 percent, if I read it correctly.

Mr. BRADLEY. You are entirely right, and you read it right.

Senator ANDERSON. So it could be 4 percent or 5 percent or 6 percent.

Mr. BRADLEY. Yes, sir; it could, under the law.

Senator ANDERSON. How do you come up with a flat 3 percent, then?

Mr. BRADLEY. In the field of interest, Senator, as far as I know, the application of it has always been based on an interpretation that interest has been included generally in the term "cost," and that normally we are thinking about the cost of money which was in the neighborhood of 2½ percent. The reclamation law used the figure of 3 percent and for years custom has had it that we use 3 percent on reclamation projects.

Senator ANDERSON. I am not quarreling about that. I am glad to see you use 3 percent. I am trying to find out in this testimony something about these other provisions. We keep running into these things.

Do I understand, now, that you believe that the reclamation law of 1939 is binding on the Flood Control Act of 1944?

Mr. BRADLEY. With regard to this particular project, yes, sir.

Senator CASE. Mr. Chairman, I do not know why this issue has never arisen as sharply as this, but I respectfully differ with Mr. Bradley on the basis of such evidence as we have here. I think that the Flood Control Act of 1944 set up two different bases for the allocation of power costs. In paragraph (c) of section 9, to which he has referred, I want to read a few more clauses. It says, "Subject to the" and so forth—

the allocation of costs and the repayments by water users, made in said House and Senate documents, the reclamation and power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the reclamation laws.

That is one proposition. That says—

where the power development is by the Secretary of the Interior it shall be governed by the Federal reclamation laws.

But section 5 precisely relates to power and energy generated at reservoir projects under the control of the War Department, and in the opinion of the Secretary of War not needed in the operation of that, shall be delivered to the Secretary of the Interior who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use, and so forth.

Then it goes on to say:

Rate schedules shall be drawn having regard to the recovery of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years.

It happens that in South Dakota we have one small power project, which was undertaken by the Secretary of the Interior, under this comprehensive plan. That is the small generating plant at Angostura.

Do you use the same basis for determining the rate for power sold from the Angostura project that you do for power sold from the Randall Dam, bearing in mind that the Angostura Dam was built by the Bureau of Reclamation and the Randall Dam was built by the Corps of Engineers?

Mr. BRADLEY. We use the same basis, Senator, basinwide, for all projects, that are either under the corps or under the Bureau of Reclamation, in the Missouri Basin project.

Senator ANDERSON. Do you believe you could use a different basis, if you wished?

Mr. BRADLEY. At this time, I doubt it, Senator, because we have accumulated since 1944, 12 years of experience reports from the Comptroller General, and so forth. Interior has consistently developed and has so reported, periodically, in one way or another, as to Appropriation Committees on the Hill, just what its practice has been. It has been somewhat controversial, but we have developed a strong administrative current in the direction of considering this a reclamation project, with one sole exception, sir. We do not consider that the revenues, after they have been credited on the books as being in aid of irrigation repayment, should finally come to rest in the reclamation fund, but, rather, that in the case of nonreclamation power dams, like Garrison, the revenues therefrom should finish up in the general fund of the Treasury.

Senator ANDERSON. I am going to insist on asking questions, because now you are really going to get into something on that, be-

cause a great many of us had hoped that as these millions of dollars come back in they did go to the reclamation fund.

Someday I would like to have you give me a little letter saying how you decided they would not.

The business of law is still important regardless of administrative decisions. I think it might have been possible to have followed two different paths, as the Senator from South Dakota indicated. We might have two different yardsticks.

Senator CASE. I think the answer to the point just raised by Senator Anderson is fixed by section 5, which says—

> with respect to the power delivered by the Secretary of War to the Interior all moneys received from such sales shall be deposited in the Treasury of the United States as miscellaneous receipts.

If you respect that sentence in section 5 as controlling the power from Army-built dams, it seems to me that you should respect the rest of that section which prescribes how the rates on the Army-generated power shall be fixed.

Senator KERR. Is it not possible, Mr. Witness, that you have a custom here conceived in error and dedicated to inaccuracy which has now been so long practiced as to assume the proportions of a consecrated fallacy? I think the Senator from South Dakota and the Senator from New Mexico have made a great contribution here in turning on the light with reference to what the witness has referred to as long practice of administrative procedure, with reference to which there is absolutely no foundation in law, unless it rests somewhere other than that which either he or others have called to the attention of the hearing.

Mr. BRADLEY. It is entirely possible, Senator Kerr, that I have in no way given you everything that should be presented to you. I am sure that the Department——

Senator KERR. All I ask for is a basis for the long practice of administrative procedure to which you referred. Everything that has been pointed out here by the Senator from South Dakota and the Senator from New Mexico would indicate that the long practice of administrative procedure rests on no foundation other than itself. If there is some other foundation, I feel that the Bureau of Reclamation, in justice to the fine reputation which it enjoys as being operated by law and not by men, would, of necessity, bring it to this committee and show it to us.

Mr. BRADLEY. Speaking for the Department, I am sure the Department would appreciate the opportunity to make a better presentation. Surely and most sincerely, I think you will find, Senators, that the steppingstones are those that I mentioned, the 1939 act, the two sections, both 5 and 9 in the 1944 authorizing act, the frequent reports to the Congress, and Senate Document No. 191.

Senator ANDERSON. I do not question that. I simply would like to see the steppingstones before I step on them.

Mr. BRADLEY. I think to do that, better than I am able to do it here, if it is the pleasure of the committee we would like to do that in the form of a prepared presentation.

Senator MURRAY. This is a valuable discussion that is taking place here, but it is taking a long time. We have a great many witnesses to be heard.

Would it be possible for you to prepare a statement for the record that would cover these matters that you have been discussing?

Mr. BRADLEY. We would be happy to, Mr. Chairman.

Senator KERR. If the chairman will yield at that point, I would request him to have the Solicitor of the Department submit it, because in the first place the witness says he is a general engineer. That is a very fine professional attainment, but he has not gilded the lily of his reputation as a legal authority by what he has told us here. If there is a basis in law, I would think that the assignment should be given to one learned in that profession.

Senator CASE. Mr. Chairman, I think it should be observed in behalf of Mr. Bradley, that he did not create this interpretation. He inherited it. I do not know how long he has been there.

Senator KERR. He has certainly indicated that he has embraced it.

Senator CASE. That may be. But certainly there is a difference. I was amazed to learn that an engineer or a lawyer or the Department of the Interior would hold that an act in 1939 would supersede an act of 1944.

Senator KERR. And be controlling on it when neither mentioned the other. The language is conflicting.

Senator ANDERSON. Mr. Chairman, I would be very happy to have the Department submit a statement on this. I am not a lawyer. Senator Case is not a lawyer either. It is helpful to us to have these arranged. As the chairman knows, I have been trying now for 3 years to get a digest of a half-dozen principal reclamation cases from the Department of the Interior, and I still hope to get an appropriation through so that an outside lawyer can bring them to us, if we cannot get them from some other source.

Senator MURRAY. I think we should follow that procedure. The Solicitor should appear here at the time he presents the matter, for further questioning.

Mr. BRADLEY. Mr. Chairman, you had in mind the Solicitor of the Interior Department?

Senator MURRAY. Yes.

Mr. BRADLEY. We will be very glad to.

Senator MURRAY. Thank you.

STATEMENT OF J. W. GRIMES, CHIEF ENGINEER AND EXECUTIVE OFFICER OF THE SOUTH DAKOTA WATER RESOURCES COMMISSION—Resumed

Mr. GRIMES. Sometime ago I was remarking that there were two divisions of the power, and I think I covered in my statement that certain power requirements are necessary for irrigation-project use, meaning the pumping of water to supply that water to the land.

Senator ANDERSON. Do you have much pumping?

Mr. GRIMES. These projects in the Missouri Basin have a terrific amount of power use in the projects themselves.

Senator ANDERSON. So the rate does not really matter.

Mr. GRIMES. The rate, as we understand it, applied to the irrigation power for pumping would be 2½ mills, as differentiated from the

commercial power structure, which is the second thing I wanted to call attention to.

We have a project use of power as incorporated in the act itself, where the Corps of Engineers use power for their powerplants before it is turned over to the Secretary of the Interior. That is a project use of power.

In that particular case, as we understand it, there is no cost as such, or any revenue derived from that power. It is simply an operating cost of the main-stem generating plant. When it is turned over to the Secretary of the Interior, it becomes commercial power and it is sold then, with preference to the public bodies and cooperatives, in accordance with good business principles and the other provisions of the act. So there are those two separate considerations for the power that is generated on the Missouri Basin project.

Senator CARROLL. At that point, what is the mill cost of commercal power? You said 2½ mills for irrigation power. What is the commercial power?

Mr. GRIMES. I think I could answer that, but perhaps it should be checked by someone from the Department of the Interior. Irrigation power to be used on Federal irrigation projects should be 2½ mills per kilowatt-hour. Firm power, commercial power, is sold at a rate structure, a graduated rate structure, depending to some extent upon conditions of the load served, and will average about 5½ mills, if a 50-percent load factor is the governing condition of the customers' load system.

Secondary power is sold at a rate structure which will average about 3 mills per kilowatt-hour. Dump power is sold at a rate which I think now is 85 percent of the fuel costs of the customers who buy it. There is one other category. Understand, the definition of firm power as used by the Bureau of Reclamation is a flexible firm power definition. To some extent it differs from a private utility who has steam plants generating, because the Bureau of Reclamation defines firm power as being that power which will meet the load curve of the power demand. If it does that, it is firm power. If it does not do that on a continuous basis, it is not firm power.

Senator CARROLL. Are you prepared in your statement later on to discuss the secondary aspect of power and dump power? There was some criticism by the preceding witness about the mismanagement of secondary and dump power.

Mr. GRIMES. I had not intended to cover that, but if you like, I can comment, as I am doing now.

Senator CARROLL. I have one other point. The payout period on irrigators is 40 years. The payout period on power is 50 years. If power revenue is to take care of deficits on irrigation, is that on a 40- or 50-year basis?

Mr. GRIMES. I understand that payment in 50 years at 3 percent is a primary responsibility, and excess revenues during that 50 years should be used to pay irrigation costs which the irrigators cannot pay, and payment for the irrigator costs would be paid after the power costs with interest had ben repaid.

Senator CARROLL. I am new on this committee, and that is why I am asking the questions.

In the operating principles, was this done in the basin program of the Missouri Basin, the operating principle for all these projects?

Mr. GRIMES. I am not sure I understand the question.

Senator CARROLL. In the pay-out period for power and irrigation costs, was it done collectively?

Mr. GRIMES. Yes. The pay-out period was included in Senate Document 191, which was the Bureau's portion of the Missouri Basin Plan.

Senator CARROLL. And when that report was made to the Congress, was there a statement about the pay-out period for power, and was there a statement about interest at that time?

Mr. GRIMES. I am sure there was, but I could not cite it.

Senator CARROLL. I am merely coming back to another statement which is unclear to me.

Well, it was in that report, the payout period, coupled with interest.

Senator BARRETT. That is right. The reclamation law provides for a 10-year development period and a 40-year pay-out. That is for 50 years. The power is on a 50-year basis, as you indicated a moment ago. So they are identical to all intents and purposes. It seems to me that the interest rate was arrived at, to a certain extent, on a negative basis. Congress provided that there should be no interest for reclamation, for the reclamation project itself. Consequently, the Congress did not give that benefit to the power features of the project, and, consequently, the interest then became as a matter of course payable under the power features.

Senator CARROLL. I merely want to say, Mr. Chairman for the record that 10 years ago in the House of Representatives we had a great dispute over this interest, and there was no fixed standard. There was some flexibility. We found that in that flexibility it helps the feasibility of some of these projects. We will talk about that later on when the report comes in.

Senator ANDERSON. I do not want to take the time, and I am not going to do it, because the chairman is anxious to get on, but I think that sometime we ought to examine that statement that the part of the power which is devoted to the repayment of irrigation costs, which the irrigators are unable to pay, bears 3 percent interest. I am not sure that it does.

Mr. GRIMES. The payment of the irrigation costs, we understand, would be interest-free.

Senator ANDERSON. But you said that a portion of the power revenues are also allocated to the payment of these irrigation costs that the irrigators cannot pay: I think that is interest-free also.

Mr. GRIMES. That is interest free also. That is the way I understand.

Senator ANDERSON. I did not understand you correctly.

Thank you.

Mr. GRIMES. Any payment, irrespective of source, for irrigation costs, is an interest-free payment, we understand. But it is very important to us in the basin as we understand the project, to have those power revenues available for the payment of irrigation costs beyond the irrigators' payment, and since there was a question about it, as evidenced by the discussion around the table, it is very, very important to us. I am not sure whether it is clear all the way through. That is the way we understand it in the basin.

Senator CASE. It is a most important question to get settled, because the development of irrigation projects may hinge upon whether or not they are going to be subsidized by the power payments.

Mr. GRIMES. That is one of our fears. I will get to that a little later in the statement.

Senator ANDERSON. One of your fears? I would say it is one of my hopes.

Mr. GRIMES. One of the fears is that we are not going to get the irrigation projects because they will not be feasible without payment from the power revenues in the Missouri Basin.

Senator ANDERSON. That is absolutely true.

Mr. GMIMES. Expenditures of appropriated Federal moneys by the Secretary of the Army are to be in accordance with the Federal flood-control acts including local responsibilities and financial obligations but primarily at Federal expense.

As the Missouri River program developed to a partial operating stage certain water-use customs have been recognized and certain operating agreements have been reached among the participating Federal-State partners. River sanitation and water supply requirements for cities and industries, principally the larger population centers downstream from Sioux City, Iowa, but also in isolated upstream instances, have been separated in waterflow considerations and are given some preference in reservoir operations. It is generally understood that these requirements include future as well as present requirements.

The Secretary has established the marketing area for the sale of Missouri Basin power. Power rates have been specified on a uniformly applicable rate structure for the various types of power service throughout the marketing area. The criteria, under which power sales are made, have been established, including preference conditions and the Federal policy that sale of Missouri River power does not include responsibility to meet customer load growth after the available river power is committed.

That is specially important. I am sure that the presentation of the preference customers here today will be centered around that particular thing, because the Federal Government's policy is that there is a block of power available here "but we cannot assure," the Federal Government tells us, "that any load growth of those preference customers will be met by Federal power."

Senator CASE. They have been meeting deficiencies in allocations, have they not?

Mr. GRIMES. Operations have met those various things, Senator.

Senator ANDERSON. Do I understand that as you now make sales to preference customers, there is a rather small and fixed limit of it, and then they sell the remaining power to nonpreference customers, but when these 10-year customers run out there are new preference customers that want to increase their amounts but cannot obtain it?

Mr. GRIMES. Only for sales to preference customers. That condition does not apply if a sale is made to a nonpreference customer, because those contracts provide, I understand, for withdrawal of that amount, if preference customers need it. But once all preference customers have power assigned to them, and the Federal Government has no more power available from the Missouri River powerplants,

then there is no more responsibility for service inherent in the Federal Government's responsibility.

When this block of power is gone to preference customers, then the Federal Government tells these preference customers, "You must get your power through your load growth elsewhere."

While responsibility for main stem reservoir operations is vested in the Federal agencies, the basin States share in the technical and administrative ccnsiderations that are associated with anticipated river flows, water needs and operational criteria.

To the best of my knowledge, I have worded the above premises and policies as they are generally understood among the people in the Missouri River Basin, To the extent we know, these basic principles function as the authorized basis for development of the basin despite the complexities of new laws, water jurisdiction discussions, increasing costs, broadened scope, agency reorganizations, administrative interpretations and related byline distractions. If, by some chance, these understandings are not proper, we in the basin are very, very fearful for the projects, and it is specially true for the later investments in irrigation upstream that we are concerned about.

If these premises and policies as we understand them are not a correct story—that is the story we have been led to believe would govern this basin development—if they are not the basis, then we should know about it.

I am afraid that we are going to find ourselves in a pretty tough situation if these premises which we are operating on are not right. I am thinking now about the beneficiaries in the valley upstream and downstream and east of us.

Progress to date and existing conditions have resulted in some internal uncertainties and fears among present and prospective power and water users. Dissatisfaction has been expressed to State government. Complaints are voiced that power rates are not the same for equivalent service among various power users. Large releases of water for navigation are blamed for lack of wintertime power. The sizable volumes of water being released through the main-stem dams without generation of power result in questions about loss of power revenue. Slowness of accretions to the conservation pools of the main-stem reservoirs brings forth questions as to why so much land was taken for reservoir areas and when will irrigation water be available.

New transmission lines being built across the State, some say, is transporting power too far. Heavy investments in power facilities are questioned as to economic feasibility. Special-interest publicity raises a storm of protest. Costs are getting so large and net power revenues are so low, some say, that we will never get our irrigation projects. These and probably others will come to your attention during your hearings.

All of these adverse attitudes, except some that would require legislation, concern relationships within the basin. They are important and I would like to comment briefly regarding them.

Since the spring of 1954 when the 1944 act main-stem reservoir operations began, and I specify that because of the Fort Peck project authorization, annual water yields of the Missouri River have been low, about 75 percent of average. During that period, also, new reservoirs had to be filled to operating levels with these low water

year flows plus water in reservoirs built under authorization prior to the Flood Control Act of 1944. In addition, demands for water service were insistent and heightened by drought conditions. Officials were anxious to satisfy the water and power needs of the area to the maximum extent possible. The result was overcommitment, perhaps, of the water supply. To satisfy power users, special interchange agreements were negotiated with power companies. This provided additional navigation season flows and navigation seasons were longer than would have been possible otherwise.

Calculated risks were taken when estimating river flows in advance. Alternative operations were worked out. Contingency factors were carefully analyzed. In short, all conditions considered, a good job has been done.

However, there is a limit to these arrangements until at least average flows in the Missouri River come. As I see it, water and power users must tighten their belts from now on to permit a buildup of insurance storage in the reservoirs. Commitments for water service have grown to such proportions that serious brownouts could occur unless there is carryover storage available. New services are in the making. Equity demands that they, too, receive a porportionate sharing of the available water supply. Commitments for water and power service from now on must be limited to reasonably safe, longer-than-one-year water supply estimate. The reservoirs now built must begin to accomplish more than a seasonal redistribution of waterflows. Also, to get the job done that must be done flexibility of operation is imperative.

I wish to suggest, also, that more decisive and definite factual information be made available throughout the basin by the Federal agencies. I wish that they would be less fearful of the consequences of their acts. I believe it would help them get their job done rather than otherwise. To date, I am not sure that they agree with my suggestion.

Since I believe, from all indications available to me, that the matter now before your committees concerns internal conditions within the Missouri River Basin and since I have faith in the Congress and all sectors of the Missouri River Basin that the complete project will be constructed, I recommend that this matter be referred to the Federal-State team in the basin with whatever guiding observations the committees see fit to add.

Governor Joe Foss of South Dakota shares these views, and I speak on his behalf.

Senator MURRAY. Thank you very much for your fine statement. We appreciate it very much. We believe it to be very helpful to the committee.

Senator O'Mahoney is here now, and inasmuch as he has to appear on the floor I would like to ask him for some comments at this time.

STATEMENT OF HON. JOSEPH C. O'MAHONEY, A UNITED STATES SENATOR FROM WYOMING

Senator O'MAHONEY. Mr. Chairman, I understood that the interpretation of the so-called O'Mahoney-Millikin amendment was one of the issues before your committee. I, therefore, want to say just a few words.

To illustrate what I have in mind, I have brought the Department of the Interior map of the United States. I wanted the committee to see clearly what I had in mind when the O'Mahoney-Millikin amendment was adopted in 1944. It will be remembered that we were at that time coming to the organization of the construction of the great interstate water project in the Missouri Basin. My interest in water arises from the fact that the State of Wyoming, and I have had the honor to be one of their Senators for a long time now, is, in effect, the roof of the country.

Not many people know that the fact is that the three greatest rivers in the United States rise in the State of Wyoming.

Senator MURRAY. How about Montana?

Senator O'MAHONEY. Montana is below Wyoming, though it is above Wyoming on the north.

The Yellowstone River has one of its sources in Wyoming. The water flows from the State of Wyoming north into the State of Montana and on down to the State of Missouri. So I say we are above the State of Montana, Mr. Chairman.

The Snake River, which rises in Wyoming, flows likewise down into the Columbia Basin and into the Pacific Ocean. The waters which rise here within a 50-square mile area at the southeastern corner of the Yellowstone National Park, flow south into the Colorado River and down into the Gulf of California. So waters from Wyoming feed the Gulf of Mexico, the Gulf of California, the Pacific Ocean, and, of course, through the Gulf of Mexico, the Atlantic Ocean.

When this State and other States, Montana included, were established and admitted to the Union, it was at a time when the policy of Congress was to promote the settlement of these areas, the agricultural development of the surface of the land and the mineral development of the deposits in all these public land States.

The policy of Congress was to invite people to move west and to settle under the homestead laws in these areas, and I must include Colorado, Senator Carroll, and I must include Nebraska, Senator Hruska, and I must include South Dakota, Senator Case, and I must include New Mexico, Senator Anderson. All of these States were part of this general area.

It has frequently been stated that the essential needs in building up these States were water as well as people. When the States were admitted to the Union, as the Committee on the Interior knows very well, the acts of admission under the Constitution established the theory of water use. The waters belong to the States. They are used by allocation made through the courts. They cannot be kept in idleness. If one holder of a water right ceases to use that water, he may not hold it idly; it goes to some other person who can use it.

When we began to build or to conceive the building of this great interstate project, like that which brought the Colorado River compact about, when we began to contemplate the development of the waters of the Missouri Basin, the purpose was twofold: First, to utilize the water and, secondly, to prevent floods. There was a great desire on the part of the users of the Mississippi River to promote navigation. But inasmuch as the rights of the people came first, when we were authorizing this structure and laying the basis for other structures, we wrote into the Flood Control Act of 1944—and bear in

mind it was the Flood Control Act, the act designed to prevent damage from floods—when we wrote that act, we were anxious to make certain that developments downstream would not destroy the historic purpose of Congress in promoting the development of the agricultural, the mineral, the industrial, the domestic resources of the States above.

The old Committee on Commerce had jurisdiction of the Flood Control Act. I appeared before that committee and my argument for the amendment which was finally written into law was based upon this simple concept: There never was any intention, and could not possibly be any intention, upon the part of Congress to compel the residents in the dry-land States west of the 98th meridian to sit at their doorsteps and watch the water flow unused by their farms and ranches to fill new, modern works below on the stream.

So by the simple method of stating that principle, and to make sure that the water would never be used to the detriment of the basic right of the settlers in this area, we wrote this amendment. I presented it to a meeting of the National Reclamation Association in Chicago. Senator Millikin was present. I remember Judge Stone, who was head of the Colorado State Water Commission at the time and a graduate of the University of Colorado at Boulder. I knew him when I was an editor of a newspaper in Boulder, and he was going to school. His concept was exactly the same as mine. Together we worked out this amendment which I presented in the name of Senator Millikin and myself.

Let me read it:

The use for navigation in connection with the operation and maintenance of such works herein authorized for construction—

and the works authorized, of course, were the Missouri Basin works—

of waters arising in States lying wholly or partly west of the 98th meridian, shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the 98th meridian, of such waters for domestic, municipal, stock water, irrigation, mining, or industrial purposes.

I do not see how language could be more simple or more clear.

Here is a declaration that none of the projects to be constructed in the Missouri-Mississippi Basin should gain any priority over the water rights of the persons living in the area here described for domestic, municipal, stock water, irrigation, mining, or industrial purposes.

Let us take domestic purposes, for example. The farmer's wife, the rancher's wife, running the kitchen on a farm in these dry land States must cook the meal. Perhaps she will use wood. She did in the old days, no doubt. Perhaps she will use coal. Coal is a mining project. Water for mining purposes cannot be prevented from utilization by the residents of this State by any navigation project constructed below. The same is true for gas. The same is true for fuel of any kind, and electric energy is fuel.

The water may be used to produce electric energy for domestic purposes, for mining purposes, for industrial pruposes. This is a solemn, explicit, clear priority which prevents any future project from gaining a priority over the water system established by the constitutions of these old States, these dry land States, and their acts of admission.

If anybody seeks to know what was in the minds of the sponsors of this amendment, I am here to tell them. The purpose here was to

protect the water rights, without which this area could not have become the thriving center that it is today.

I remember from my own experience. I came to Washington first as secretary to Senator John B. Kendrick, of Wyoming. He made the trip from Matagorda Bay, in Texas, across this area, now the State of Oklahoma, up through Kansas, through part of Colorado, and up into Wyoming, driving cattle. Many times he told me that when he first made that trip, just as a young man of about 18 or 19 years of age in charge of a great herd of cattle which he was driving along there, there was not a habitation of man, except the tepee of the Indian in that whole area. There was not a fence; it was all prairie land. Over that, he drove the herd of cattle. He was accompanied by cowboys. They established ranches and farms up in this area, ranches first—the farmer came later on. Sometimes there were conflicts between the homesteader and the rancher over the use of the public domain, true. But this was only part of the historic development of the West. And nobody ever dreamed that the time would come when it would be contended that the water of this area could not be used by the people who inhabited the area.

Senator Kendrick, as I say, passed over this land, and there was not a State in the whole area. Now there are thriving States, each with two Senators in the United States Senate. You take away their water and they will not be very good Senators.

Is there any question?

Senator HRUSKA. I have a question, Mr. Chairman.

I first of all want to express my appreciation for this fine historical background. Both Senator Carroll and I are new on this committee and to this phase of work. I want to commend you for that very clear explanation of the background of this O'Mahoney-Millikin amendment. Maybe it is only a rhetorical question, Senator O'Mahoney when you asked how much more simple the language of the subsection (b) could be. But I would like to interpret it literally and ask this question, because, after all, you phrased the amendment and you were instrumental in getting it approved.

Why was there not a specific reference to the use of water for hydroelectric generation purposes in the amendment?

Senator O'MAHONEY. The reason for that was that the only danger that we feared at that time, the specific danger that we feared, was the construction of a channel on the Missouri River near Sioux City, where they were going to widen the bed of the stream and deepen the channel. The Army engineers' plan was directly intended to require that the water from the whole upper basin should fill that channel first. We were thinking primarily of navigation. But not being able to foresee all of the possibilities of power, and not intending to prevent the utilization downstream of water for power, we were content to write into the objectives "domestic and municipal."

We were cognizant of the fact that in this area there were municipal powerplants. I remember very well when I was a city editor in Boulder, Colo., driving over to Longmont, Colo., where the municipal public power system had a porchlight free on every home in that town. It is something that I have never known to be given by any so-called private utility, by the way, Mr. Chairman—free lights on the porches.

I do not believe that the development of REA should be hampered now by any interpretation that industrial purposes, municipal purposes, domestic purposes do not comprehend the use of water to produce fuel, whether by way of coal or power.

Senator HRUSKA. What discussion was there in the formulation of this amendment that pertained to the hydroelectric generation of power? Was there any discussion or consideration of it at that time, expressly and specifically?

Senator O'MAHONEY. Not expressly and specifically that I can remember at the moment, except that we were talking at this time, in 1944, about REA. We were well aware of that. Your great predecessor, Senator George W. Norris, who, I believe, deserves a place among the select——

Senator HRUSKA. That report has already been rendered, so this is ex post facto, I believe.

Senator O'MAHONEY. I do pay tribute to Senator Norris because I cooperated with him in his successful effort to establish the TVA and to establish rural electrification. It is a great instrument for the development of our area—Nebraska, Wyoming, and Colorado as well.

Senator HRUSKA. The reason I ask is that now we are compelled, apparently, to resort to interpretation of the words "industrial purposes," as to whether or not it includes hydroelectric generation of power. I thought perhaps if it were a factor back there, there might have been some other reason for excluding it from express enumeration.

Senator O'MAHONEY. I can assure the Senator there was no reason for excluding it. If we had ever thought that industrial purposes would not include the furnishing of power for industrial objectives, if we thought there was any such interpretation at all, it certainly would have been mentioned. I think it is implicit here.

Senator HRUSKA. Is there any evidence or any testimony in the record back there in 1944, and leading preliminarily thereto, that there was an intention as of that time to include hydroelectric power generation in the term "industrial purposes"?

Senator O'MAHONEY. It was certainly clear that there was no intention not to include it.

Senator HRUSKA. That does not quite answer my question, but if that is the best you can do, I guess that will be it.

Senator O'MAHONEY. I was conducting another hearing this morning. I knew about this matter only today. I remember sitting, I think, at this very table, when Senator Overton, then chairman of the Senate Committee on Commerce, was holding hearings on the Flood Control Act of 1944. I remember participating in the hearings, asking questions and the like, and never once was there any suggestion that the use of water for power should be excluded; never once.

Senator HRUSKA. But you do not have any independent recollection now as to whether there was specific reference. to that—that it would be included?

Senator O'MAHONEY. No; I am frank to say that I do not.

Senator CARROLL. Would the Senator from Wyoming yield for just a moment?

Senator O'Mahoney, the use of the word "domestic" had reference not only to domestic families in cities but domestic families in connection with the farm life.

Senator O'MAHONEY. Of course.

Senator CARROLL. At that particular time was the Colorado-Big Thompson under construction, at the time that this O'Mahoney-Millikin amendment was adopted? The purpose of that project was to use power for irrigation. I think the Senator will remember the operating principles of that project.

Senator O'MAHONEY. Of course. The Senator is very right.

Senator CARROLL. There were other projects under consideration where there was the use of power both for domestic and irrigation purposes at that time. These were passed by the Congress. As I recall, the Colorado-Big Thompson was passed in 1936 or 1937. We have had testimony today, and I do not know whether the Senator from Wyoming was present at the time, where in the consideration of this very project that they are now using, it is a vital part of the Missouri Basin project, according to the testimony of the engineer from the State of South Dakota; that they use power itself for irrigation purposes.

It seems to me that the intent of this amendment is clear: That it was to use whatever use water could be put to that would be beneficial for the purposes set forth in the amendment.

Senator O'MAHONEY. May I say in response to you, Senator Carroll, and also in further response to the questions of Senator Hruska, that at this time Congress was very alert to the use of water for the development of power. Senator Hayden and I, several years before, had introduced an amendment by way of one of the appropriation bills, to use power revenues for the payment of the costs of construction. The committees having to do with legislation for reclamation and power, the committees having to do with appropriations, had many discussions about power revenues. We were cognizant of the development of electric power by the use of water.

Had there been any intention to exclude electric power from the meaning of domestic or industrial objectives, it certainly would have left its trail at this time. Nobody was fighting REA then, as is the case now. Nobody was talking about the TVA as creeping socialism then, as now. Nobody was condemning the use of a great public resource for the development of the energy without which human civilization cannot exist in the modern day.

So I have no question at all in my own mind that we successfully covered what we had in mind when we wrote this amendment.

Senator CARROLL. I thank the Senator very much. I will just make this one observation for the record. The Congress had passed the Colorado-Big Thompson, which included a 13-mile tunnel, a transmountain diversion, and it was at that time in the operating principles that the water would flow through that tunnel, that power would elevate it to flow to the tunnel. In turn, the water would fall, creating more power. It is almost as close as we can come to perpetual electrical energy motion. Certainly the Congress must have had in mind, when we think in terms of domestic irrigation—they must have had in mind the use of electrical energy.

Senator O'MAHONEY. Just to make it definitely clear, let nobody be misled by the use of the words at the very beginning of the amendment. We were thinking only of the filling of this Sioux City channel for navigation with water that we could use for power, industrial purposes, and the like. I am glad that the Senator from Colorado has mentioned the Big Thompson. That was being done at exactly the same time.

Had there been any danger of such an interpretation, Senator Millikin would never have been on this amendment with me. We would never think that there would be such an interpretation.

To obtain such a result there would have to be in my opinion specific language in the law. There is no specific language in the law, and an interpretation of this kind cannot be reached by indirection.

Senator CASE. Mr. Chairman, if the Senator would permit, in support of what the Senator has said with respect to the question that was at issue at that time, I have here the Congressional Record for December 12, 1944. The conference report on the Flood Control Act of 1944 was the only place in which the House considered this matter.

The Bureau of Reclamation developed this in the Senate and it was in the Senate, of course, where the O'Mahoney amendment was inserted.

Congressman Whittington, of Mississippi, was the chairman of the Flood Control Committee in the House at that time. When he presented the conference report to the House, he brought up the O'Mahoney-Millikin amendment, with these words:

A settlement of the conflict of interest between navigation and irrigation has been arrived at in this legislation by a declaration of policy by the Congress of the United States. It reads as follows—

and then he read the paragraph, this paragraph (b) to which you referred, the use for navigation and so forth.

So in the presentation to the House, it was presented as a settlement of the conflict of interest between navigation and irrigation.

Subsequently, during the same day, during the consideration of that report, I interrogated Mr. Whittington, and so far as I know, my interrogation was really the only one which related to power.

After an introductory remark or two, I said, "Now, then, I would like to ask the gentleman one question. My understanding of amendment No. 9, relating to power, is that it centralizes the disposition of power generated in the dams in the Secretary of the Interior.

Mr. WHITTINGTON. That is right.

Mr. CASE. And limits him in the construction or acquisition of lines to such lines as are necessary for distribution on a wholesale basis?

Mr. WHITTINGTON. Exactly so. I am glad that the gentleman brings this matter to my attention. I should have pointed out that therein is the difference between the sale of power generated at some of the other dams. This disposal is limited to wholesale. I may say that in my judgment the provision is entirely proper. The House will recall that the Senate spent much time in considering the so-called Bailey amendment, which would have restricted the disposal of the power to the dam site, which I think would have been unsound.

Mr. CASE. The limitation to wholesale distribution seems to me to be an appropriate compromise. The Secretary of the Interior, thereby, will not be urged or tempted to go into competition with the REA or any other distributing agency, private or public, yet should be in a position to extend the use of the power to the maximum public benefit through whatever distributor is interested and available.

In a quick review of the debate on the conference report, that was the only reference to power. The fact that Mr. Whittington introduced the amendment with the statement that it was a settlement of the conflict between navigation and irrigation, I think supports what Senator O'Mahoney has said.

Senator O'MAHONEY. I thank the Senator. I quite agree with his interpretation.

Senator MURRAY. Senator, I assume from the wording agriculture is considered as an industry and is therefore in your amendment?

Senator O'MAHONEY. Of course agriculture is an industry.

"Irrigation" was the word which we felt included agriculture, because irrigation is for the purpose of providing water on the land so crops may be grown. I think we were thinking of agriculture in connection with the word "irrigation," rather than in connection with the words "of industrial purposes."

Senator CARROLL. Mr. Chairman, one other point has been raised here by a witness inferentially.

Was there a distinction between the beneficial use, Senator O'Mahoney, and a beneficial consumptive use?

They, and this is inferentially, seemed to be drawing some distinction between beneficial use and beneficial consumptive use. Was there some reason why you put in the words "beneficial consumptive use?"

Senator O'MAHONEY. No, there was not. The concept, of course, arises from the fact that in thinking of irrigation laws and reclamation and power development, we are always concerned with what amount of water is consumed, and what the return flow will amount to. We regarded all of these uses mentioned in the amendment as consumptive uses.

Senator HRUSKA. Getting back again to the use of water for generation of power, is that a consumptive use?

Senator O'MAHONEY. I would not undertake to say that it is not a consumptive use.

Senator HRUSKA. It does not deplete the amount of water, but simply transfers it from a higher level to a lower level, but consumes none of it.

Senator O'MAHONEY. In the process of going through the structures that are built, there is evaporation. There must be some loss. Of course, I think, strictly speaking, the water passes through a giant circle, from the land, through the power of the sun, to the clouds, and then to the rainfall again in some other place. There is a continuous circle. The water is not eventually consumed. It is returned to the surface of the land some way.

Mr. Chairman, I am very grateful for your attention.

Senator MURRAY. Thank you, Senator.

The next witness will be Mr. A. M. Eberle, dean of agriculture, South Dakota State College.

STATEMENT OF A. M. EBERLE, DEAN OF AGRICULTURE, SOUTH DAKOTA STATE COLLEGE, BROOKINGS, S. DAK.

Senator MURRAY. Will you state your name, sir?

Mr. EBERLE. My name is A. M. Eberle, dean of agriculture at South Dakota State College, located at Brookings, S. Dak. State College

is a land-grant institution, and is the only institution of higher education in the State that works in the field of agriculture. In this field it maintains a strong teaching staff, carries on research, informs farmers and homemakers through its Extension Service on all agricultural and homemaking practices, and maintains an action program known as Statewide Services.

State College has a definite interest in the full water resource development of the State.

Water is the lifeblood of the Nation. No nation can rise above its available water supply. There is not a natural resource that is more important than water. It can be considered the resource of all natural resources as none can be developed without the use of water.

South Dakota is an agricultural State and is entirely dependent upon its water supply for agricultural stability and for all other uses.

South Dakota is in the midcontinent and, therefore, its rainfall is at the margin. An inch of annual precipitation less the margin many times means a loss of crops and an inch over the margin many times means a good crop. Two disastrous droughts of 3 to 5 years or more have occurred since 1900 and many others of 1 to 2 years duration since settlement of South Dakota. There has been only 1 year in the last 20 years when South Dakota received a good small grain and corn crop the same year.

Data covering 88 years in this, and the immediate adjoining area, show that during 28 percent of these years the crops produced ranged from total failure to such low yields as to bring some degree of want and privation to the farmers.

The State has some 19,323,000 acres in crops, of which about 6 million are in tame and wild hay and the rest of the agricultural land is rangeland. The gross farm income per year is around $550 million.

The State has no large industries and as a result must ship out its raw products and ship in its manufactured goods.

State College has always been conscious of the water problem in this State, not only for irrigation, but for all purposes. Adequate supplies for municipal purposes, both for human use and sanitation have been gradually becoming more and more a problem, until today it is very acute in some parts of the State.

South Dakota has four sources from which it does or can secure its water supply. They are:

1. Rivers and streams.
2. Underground.
3. Rainfall.
4. Artificial rain increasing.

When the 1944 Flood Control Act was passed, South Dakota thought some of the problems of water supply would be solved. We believed that the act set up water priorities among the States in the Missouri River Basin.

At the time of the passage of the act, South Dakota was not ready to accept the water and, therefore, was very willing to let the downstream interests use the water. Permitting the downstream interests to use South Dakota water priority in no way established a precedent and gave any State or special interest group a prior interest in the water running through and originating in the State.

South Dakota is now ready to claim and utilize its share of the waters of the Missouri River and the rivers of the State.

Four of the six main-stem, multiple-purpose dams are in South Dakota. These dams will take out of production and off the tax rolls of the State some 500,000 acres of land. This sacrifice was made by the State and the citizens directly affected because of the longtime beneficial effect it would have on the stability of agriculture and the growing population of our cities and towns.

State College, and all its citizens, believe that the full development of the State's water is essential. With that in mind, the State College, and a committee from the State legislature, spent several years in studying the water code, in bringing it up to date, so as to make possible the full development of its waters for all the people.

The new code was passed by the legislature in 1955. The legislative research council, of the legislature, then appointed a subcommittee to decide if a watershed act was necessary under the State's program of full utilization of its waters and, if so, to formulate one.

The 1957 legislature passed a watershed act, one that will allow for the orderly development and control of water in a subwatershed, typing this development into a comprehensive plan for the entire watershed. We believe we have one of the best acts in our section of the country. The State has been alert to its responsibilities and has made it possible for State and Federal agencies to develop our water to the fullest extent, however, within the framework of the State's approval and direction.

State College has had a part in all these developments. State College recommends that its water be used first for human consumption and sanitation, then irrigation and power, recreation and navigation.

Senator CASE. In that order of priority?

Mr. EBERLE. That is the way we have recommended it.

We would like to make it clear that, if for the moment all allocation of the stored water in the State cannot be made, it is essential to have it stored in the State and that the priority for use be in the hands of South Dakota. As our population increases, as industry comes to South Dakota, more and more water will be needed.

If the ground water supplies continue to recede, it is not at all impossible that water from the large main-stem dams will need to be piped to our cities and towns. Stored water in a great number of dams, large and small, may also help the ground water supply.

The irrigation development of the Oahe project covers some 500,000 acres and when finally approved by the people will need water. It will take many years for its full development, yet the water supply must be available when needed and this can only be possible through storage in large and small dams, large dams on the main stem of the Missouri River, smaller dams on the rivers that eventually run into the Missouri, and dams that are feasible for storage purposes in our watersheds.

A program of this magnitude will lessen the effects of drought, will stabilize agriculture, will assure our towns and cities adequate supplies of water, thus encourage an expanding population and bring industry into our State, and to the midcontinent, that under the present situation is impossible.

South Dakota is doing everything it can to develop its water supply. Nothing is being left undone. We earnestly hope that the Congress will cooperate with us, by protecting our water priorities and encourage South Dakota to continue its well-thought-out plan of protecting its waters, so they will be available for the full development of the State's agriculture, and its incoming industries and its population growth.

I thank you, Mr. Chairman. That is our appeal.

Senator MURRAY. Thank you very much.

Senator ANDERSON. Could I ask what it is you would like to have the Congress do?

Mr. EBERLE. We would like to have the Congress protect our water supply that we have in South Dakota.

Senator ANDERSON. In what way?

Mr. EBERLE. If we have our main-stem dams, by maintaining the water levels as was proposed by the Corps of Engineers and the Bureau of Reclamation, that the water be maintained to that level, so that when we do need the water we will have it.

Now, if we do not use it, and you empty a dam so low that it will take 10 years to fill, we may not have the water available when we need it.

That is our appeal, that the supply be kept in the dam as proposed, and not be used for some other purpose downstream, and when we want it we would not have it.

Senator ANDERSON. Do you feel on an interstate stream that you have a claim to the water that is behind all of these dams? The water came from some other place, did it not?

Mr. EBERLE. That is correct. But we are storing it. We are donating 500,000 acres of land for the use. We ought to have some interest in that.

Senator ANDERSON. The reason I ask that is because the first speaker said that there would be additional witnesses, of whom I presume you are one. He listed the present operation of these main-stem dams is such that the benefits are not realized. Do you object to the operation of the main-stem dams?

Mr. EBERLE. No; I do not.

Senator ANDERSON. Apparently he did.

Mr. EBERLE. I am not included in those witnesses. I am representing State College, and I am not one of those witnesses.

Senator ANDERSON. Let me get to this, the memorial of the Legislature of South Dakota, which passed House Concurrent Resolution No. 2, in which it said:

> *Now therefore be it resolved*, That the Interior and Public Works Committees of the United States Senate be respectfully requested to instigate investigations in the use of water stored in South Dakota under the Flood Control Act of 1944 and particularly with respect to the O'Mahoney-Millikin amendment.

What do you think we should investigate in compliance with that resolution?

Mr. EBERLE. Of course, I think the resolution had in mind that the investigations should center around the use of the water downstream, just because South Dakota was not ready to fully utilize the water that is stored in the State at the present time.

Senator ANDERSON. The representative who spoke for the Governor, of the water resources board, said, "I recommend that the matter be referred to a Federal-State team in the basin." Do you agree with that recommendation?

Mr. EBERLE. Yes. I think he probably had in mind either the Interagency Basin Committee or some Federal-State team. That is a Federal-State team.

Senator ANDERSON. Do you think this committee should investigate it or that the Federal-State team should investigate it?

Mr. EBERLE. Well, whoever would be closest to the source of the investigation. No doubt, if it is the Interagency Basin Committee that he is talking about, they should make recommendations to the Congress.

Senator ANDERSON. I am sorry? He said:

I recommend this matter be referred to the Federal-State team in the basin, with whatever guiding observations the committee sees fit.

Do you believe the investigation should be here or by the Federal-State team?

Mr. EBERLE. It should be by the Federal-State team, recommended to you people. They are at the source. They could do a more thorough investigation than the Congress could.

Senator ANDERSON. Then you would just adjourn this hearing and let them?

Mr. EBERLE. No, I should say not.

Senator ANDERSON. You cannot have it both ways, can you?

Mr. EBERLE. I should think you could.

Senator ANDERSON. Do you want the investigation made by the Federal-State team or by this committee?

Mr. EBERLE. I wish I knew just what Joe Grimes meant on that.

Senator ANDERSON. What do you mean? He is not on the stand right now.

Mr. EBERLE. I think that this committee should make the investigation, and should use the Federal-State team, probably, as advisers, to get what information you folks need, and then it is up to the Congress to make the decision.

Senator ANDERSON. What decision?

Mr. EBERLE. As to the priority use of the water on these mainstem rivers. Is that not what we are talking about?

Senator CASE. Do you anticipate, then, Dean, that as we get testimony from the Bureau of Reclamation and the Corps of Engineers that we will get the benefits of the findings of the so-called Federal-State team?

Mr. EBERLE. I think we will, definitely will.

Senator CARROLL. What do you mean, Dean, by downstream interests?

I note that at the time of this passage of the Flood Control Act, South Dakota was not ready to accept the water, and that the downstream interests are mentioned. Have they applied that? Have you referred to people downstream, except the navigation? I am thinking of other cities or other farms.

Does that create a problem for you in South Dakota? Have they applied this water to beneficial use before you have?

Mr. EBERLE. Do you mean in our State?

Senator CARROLL. The States that are below you.

That is why I wanted to know about the downstream interests.

Mr. EBERLE. By that I would mean from Sioux City south. That is what I call downstream interests.

Senator CARROLL. Thank you.

Senator CASE. Mr. Chairman, I would just like to ask a couple of questions.

Dean Eberle, what you said with respect to the use of water in South Dakota, the water part there, you would also accord to the State of Montana for water stored in Fort Peck, or the State of North Dakota for water stored in the Garrison Reservoir?

Mr. EBERLE. That is correct, yes.

Senator CASE. And with respect to this immediate problem of the allocation or application of water, do you recognize, as Mr. Grimes did, that we have two factors now to consider? One is the 75 percent of normal rainfall that has been taking place during the period that water had been stored in the Randall Dam, Garrison, and behind the Gavins Point Dam?

Mr. EBERLE. Yes.

Senator CASE. That is, at the present time, we do not have the storage that the full implementation of the plan contemplates when the Oahe Reservoir is completed, or when all of the reservoirs have been completed long enough to have any storage over a period of years.

Mr. EBERLE. Yes. That is, we have in mind that we should keep the level of these dams about the way it is contemplated so that we would have water available at all times.

Senator CASE. And you also recognize that the dams have not all been completed yet?

Mr. EBERLE. No; not yet they have not been.

Senator CASE. And during this period when we have the project only in a partial stage of completion, and also have a subnormal runoff, that the problem of operation is more complicated than it would be when they have been completed and when the storage has once established a normal operating level for the different pools?

Mr. EBERLE. That is correct. We are in the period now of a little dry cycle, so the dams have not been filling the way they should be.

Senator CASE. I think if I might make the observation, Mr. Chairman, part of this problem is created by the fact that the dams are not all completed as yet, and even those that are completed have not been operating long enough to have a leveling-out effect on the streamflow.

I hope that when the engineers come, they will give us some figures about the average flow, the maximum flow and the minimum flow, and what they think the operation of the dams as an integrated system would mean so far as a dependable flow is concerned at any given point.

Senator MURRAY. I think that is very important, Senator Case. We will be in contact with the Engineers.

Senator CASE. I see some of them present. I hope they will keep that in mind.

Senator MURRAY. If there are no further questions, thank you, Mr. Eberle.

The next witness is Mr. Virgil Hanlon.

The hour is very late, so we will recess until 2 o'clock.

Mr. Virgil Hanlon will be the first witness at that time.

(Whereupon, at 12:45 p. m., the committee recessed, to reconvene at 2 p. m., the same day.)

AFTERNOON SESSION

Senator MURRAY. The committee will come to order, please.

At the suggestion of Senator Anderson, the committee has asked the Solicitor and other representatives of the Department of the Interior to be present at 2 p. m. on Friday, to clear up the questions which arose this morning pertaining to power revenue costs which irrigators are unable to pay. The committee will, therefore, meet at 2 p. m., Friday, in addition to the sessions already scheduled.

Because we were unable to complete the list of witnesses this morning, and because of airplane reservations this afternoon of some of the witnesses, we have revised the witness list for the afternoon session.

Mr. Hanlon, who was scheduled this morning, will appear immediately after Senator Symington and his group.

The order of the other witnesses has been revised in accordance with their requests based on their air reservations. I am sorry there are not sufficient copies of the revised list for everyone. Several copies have been made.

The senior Senator from Missouri is now here, and I recognize him.

STATEMENT OF HON. STUART SYMINGTON, UNITED STATES SENATOR FROM THE STATE OF MISSOURI

Senator SYMINGTON. Mr. Chairman, let me thank you for your typically gracious courtesy and tell you what a pleasure it is for me to appear before your committee.

Mr. Chariman, full utilization of the Missouri River and its tributaries has been a major goal ever since our basin was settled.

The Pick-Sloan plan, adopted in 1944, authorized construction of the reservoirs, levees, and other works necessary to achieve this goal. Missouri Basin residents appreciate the flood-control benefits being achieved under the Pick-Sloan plan.

But flood control is not the whole story. Also of importance are municipal and industrial water needs. In my own State of Missouri, three major cities: St. Joseph, Kansas City, and St. Louis, as well as many smaller cities, depend upon the Missouri River for their water supply.

During the severe drought of recent years, these cities would have been literally without water except for the controlled releases from the upstream reservoirs which stabilized the river flow.

Neither must we overlook the importance of water transportation. Future industrial development and full utilization of our agricultural potential depend to large extent on water transportation being available for both raw materials and manufactured products.

We in the lower Missouri Basin recognize that our friends in the upper basin areas have great interest in the hydroelectric power and irrigation potential of the stored waters. We understand and commend this interest.

The Pick-Sloan plan was adopted with support of both regions. We ask now that the water be used to the best advantage of the entire basin as the great natural resource it is.

With wise use of the waters in the upstream reservoirs, full development of the great Missouri Valley will be possible. Now, for the first time, residents of the lower Missouri Basin can look forward to the day when their homes and businesses will be protected from floods and, at the same time, during times of severe drought there will be a supply of water available to sustain municipal, agricultural, industrial, and transportation needs.

Such broad utilization of the waters of the Missouri River is wise and proper. Our country will grow stronger when all our water resources are so developed and used.

Mr. Chairman, it is now my pleasure to present to your committee one of the most outstanding of our Missouri citizens, and he also will present to you two gentlemen, Mr. Willard Breidenthal, of Kansas City, Kans., and Mr. Joe McDowell, of Kansas City, Kans.

At this time, I would like to present to you, Mr. Chairman, Mr. Jay B. Dillingham, president of the Kansas City Chamber of Commerce and of the Kansas City Stockyards Co.

STATEMENT OF JAY DILLINGHAM, PRESIDENT, KANSAS CITY, MO., CHAMBER OF COMMERCE

Senator MURRAY. You may state your full name and your official position, and any other matters that you wish to have in the record.

Mr. DILLINGHAM. Thank you, Mr. Chairman.

My name is Jay B. Dillingham. As the distinguished Senator from Missouri said, I am presently president of the Kansas City, Mo., Chamber of Commerce. In private life, I am president of the Kansas City Stockyards Co. My home is on a farm in Clay County, Mo.

I believe, as indicated, water is one of our current major issues.

Mr. Chairman, I will try to make this statement as brief as possible, realizing the burden on your time.

Kansas City and the surrounding area on the lower Missouri River oppose any change in the present policy based on the provisions of the Flood Control Act of 1944 in respect to the operation of the large multiple-purpose reservoirs on the upper Missouri River. In principle the proposal objected to seeks to firm up the generation of hydroelectric power developed at these reservoirs by giving to power generation a higher degree of priority as to use of water than it was intended to have or now possesses.

This, we believe, would be not only hostile to the original intent expressed prior to the authorization of the construction of these reservoirs but also be exceedingly harmful over a period of years to the development of the full potential of the reservoir system for all beneficial uses. It was understood that the generation of hydroelectric power was a desirable but incidental beneficial use of the stored water. The primary purpose was, by stabilizing flow in the river as needed below the reservoir site, to establish flood control and at the same time give to the channel below the reservoirs a comparatively constant flow sufficient to meet the actual needs of the great river valleys below on the Missouri as well as on the Mississippi, needs for domestic, indus-

trial, and navigational uses. It was believed that releases which would provide approximately 30,000 second-feet of water in the channel at Sioux City from May until November, and a lesser amount by probably 15,000 second-feet during the remaining months of the year, would generally be sufficient to meet these needs.

Prior to the enactment of the Flood Control Act of 1944 some controversy developed as evidenced not only in congressional hearings but at meetings of the Mississippi Valley Association between downstream interests and upstream interests as to the sufficiency overall of the water resources of the Missouri to meet all needs and the Western States on the upper Missouri, the Dakotas, Montana, and Wyoming, were particularly concerned for fear developments might limit the water available for their consumptive uses in irrigation, domestic, and industrial water supply.

Even during normal years prior to 1944, i. e., normal as to precipitation and discharge, waterflows in the lower Missouri during the period directly following the close of the irrigation season and when reservoirs used primarily for irrigation on the upper tributaries of the Missouri were being refilled became extremely low even to the extent of placing in jeopardy supplies of water for the waterworks plants of the large cities on the lower river such as Kansas City, Mo., and Kansas City, Kans.

During those particular months rainfall is normally short in the lower valley and very often the tributaries below the Dakotas flowing into the Missouri have an extremely low output. Downstream interests, however, made a rather careful and comprehensive study of the overall sufficiency of the supply of water in the Missouri upon the assumption that adequate storage and impounding was to be provided through the construction of the large upstream reservoir, either now completed or under construction. The result was a compromise as expressed in the O'Mahoney-Millikin amendment to the Flood Control Act of 1944 which gave to the States interested in irrigation primarily a priority of right to the water for consumptive use, primarily irrigation, and which extended this priority of those consumptive uses to all the area west of 98th principal meridian and also to irrigation in the States crossed by the 98th meridian.

It was agreed that a careful and comprehensive study should be made as to the sufficiency of the water available based on the assumption of the provision of adequate reservoir storage. It was estimated that a cycle of 25 years of normally short flows would be involved as against a subsequent cycle of 25 years of flows or inputs in excess of normal.

The reservoirs were designed to have a storage capacity in excess of flood-control storage sufficient to accommodate their use to this historic cyclical variation in available supplies of water. The result of the study was to confirm the preliminary conclusion reached by downstream interests that there was sufficient water available for all consumptive uses including that which would be required for navigational purposes on the lower Missouri River and on the Mississippi below St. Louis but the sufficiency of the supply was predicated upon first, operation of the reservoirs over a period of years of comparatively normal or excess precipitation so that the storage capacity

could be utilized, and second, seasonal variability of releases based on the needs at the time of the lower river valley.

It is manifest and unquestioned that there are times when the tributaries of the Missouri River, such as the James, the Little Sioux, the Platte, the Kansas River, and many others, are in full flow and in order to guard against flood in the lower river valley releases from the reservoir system should be greatly restricted or perhaps on occasion cut off entirely.

This, of course, would mean the curtailment of power generation for the time being but would also mean greater storage back of the reservoir dam for the development of a greater volume of hydroelectric power during subsequent periods.

Annually there are seasonal variations in the actual needs for water supply in the channel of the Missouri River below the lowest reservoir at Gavins Point in South Dakota.

Are releases to be governed by those needs or are they to be based upon the need or the demand for the generation of hydroelectric power at the dam sites? It is our position that the generation of firm hydroelectric power is and must be a secondary or incidental use of the water.

It happens that since the closing of the first reservoirs such as Garrison, Gavins Point, and Randall in the new system, the upper river valley has experienced, as well as the lower river valley, a series of exceedingly dry years of low precipitation. There is actually less water today, so I am told, and so I think the Corps of Army Engineers will report to you, in the entire reservoir system than there was back of the Fort Peck Dam alone prior to the construction of the lower reservoir. Therefore there was every need or demand to conserve insofar as it was possible to do so, the water actually available.

During those seasons of the year when the tributary streams below Gavins Point are producing comparatively little water for the Missouri River channel we need substantially increased releases from the reservoir system above. We have great steam-operated electric plants along the river. There are 2 great plants, 1 in Kansas City, Kans., 1 in Kansas City, Mo.

There is also an REA plant below Kansas City and there are many others which are dependent upon an adequate water supply in the Missouri River. Last summer water in the Mississippi and Missouri at St. Louis fell to levels which endangered the electric power supply of the city of St. Louis and had it not been for releases from the reservoir system above and also an order of the Supreme Court of the United States which permitted emergency release from the Great Lakes into the Illinois River, there was a strong probability that St. Louis, Mo., would have been short of electricity.

In addition to this there are the needs for the water supply for great waterworks plants serving millions of people, for important navigational purposes, for sanitation and for general consumptive uses in the lower valleys, both of the Missouri and the Mississippi. The question seems to me to be one as to whether or not we will let the demand for firming up hydroelectric power in the Dakotas and other Western States take precedence over the greater needs of vastly greater numbers of people for other more important uses. We were willing to compromise with the irrigation minded people of the West-

ern and more arid and Northern States and give positive assurance that there would be priority for consumptive uses west of the 98th meridian.

We are not willing to see hydroelectric power generation granted priority.

Thank you very much, Mr. Chairman.

Senator MURRAY. Were you present this morning when Senator O'Mahoney explained the amendment?

Mr. DILLINGHAM. Yes, sir.

Senator MURRAY. Have you any comments to make on Senator O'Mahoney's statement this morning that power generation of the West is protected by his amendment?

Mr. DILLINGHAM. I do not believe there is too much argument on that, Mr. Chairman. At present, we are manufacturing power with the water at the dams. In fact, there was one witness who testified that hydroelectric power was being used in the northwestern corner of Iowa which is not contemplated by the so-called agreement on the distribution of water in that area.

As I gathered the testimony this morning, it is a case where the growth of the area has created greater demands for power, and there naturally is a need for a greater generation of power that is detrimental to the other interests of the entire area. I had contemplated that Senator Anderson would ask me the same question that he asked the other witnesses, as to what we recommend that this committee do about it.

If I may be so bold as to say so, we have a joint interagency committee now in the basin, which is comprised of all the Federal agencies interested, all of the governors being represented on that committee, too.

Through this collaboration and cooperation with all the agencies of government, particularly with the Corps of Engineers, I understand it is their final legal responsibility to regulate the reservoirs. But that committee has set up the policy for the distribution of the water.

Up until now I haven't heard any testimony that would indicate a violation of any law, up to date, other than a demand for more water to make more power.

Senator MURRAY. It seems to me that the statement made by Senator O'Mahoney this morning was very clear, that under that amendment the rights of the people in the upper States are protected for the use of those waters for domestic and other purposes.

Mr. DILLINGHAM. Yes. I think his statement this morning would indicate a very difinite intention to protect the interest of the entire Missouri River Basin in the water. There is one other thought on the water problem, too.

I do not know what the consequences of it are, but this water, when it is trapped in these great reservoirs built at the expense of the Federal Government, actually could conceivably belong to the Federal Government. If private individuals wanted to trap the water before it got to the reservoirs, then it would be within their province to do as they see fit. One conclusion is once it gets into the reservoir itself, it belongs to all the people.

Senator MURRAY. Do you have any questions, Senator?

Senator CASE. Yes, Mr. Chairman.

Mr. Dillingham, earlier in your statement you said it was understood that the generation of hydroelectric power was a desirable but incidental beneficial use of the stored water.

On what do you base that statement?

Mr. DILLINGHAM. I believe that the record will show, and will have more testimony from our area on the point, I believe most all of the reservoirs so far under discussion were built as a part of the Pick-Sloan flood-control program.

Primarily, the first objective was to prevent floods in the entire Missouri River Basin. The people of the lower Missouri River were glad to cooperate with the people of the northern areas, so as to provide first that the great reservoirs would be built on the upper reaches of the Missouri so that when it got down as far as Kansas City, for instance, that we might ultimately have actual flood protection.

I do not think I need to mention it to you, but the hazard of that was in 1951 we had the greatest disaster that ever struck the Missouri River Valley. It came out of the Kaw River, but that is part of the Pick-Sloan program. You could not anticipate it, yet there was nothing that we could do about it.

It was obvious in our own company, that went through the flood of 1903, and that is about the time that the Kansas City area started to work on a flood-control program. Our own company spent several million dollars trying to provide individual flood protection for our own property, which is certainly wishful thinking. It cannot be done that way.

Then we joined with the Greater Kansas City Flood Protection Committee to try to get it for the area, and that led to the first act of 1936, with a lot of these projects authorized, and ultimately the act of 1944.

As I say, the primary purpose in the reservoirs we are talking about was, first, to provide flood protection.

Senator CASE. The first resolution under which the study was made, as I stated this morning, the resolution under which Colonel Hoag first worked, was a resolution which mentioned only the development of power. The hearing was held in Pierre in March 1940. It was based upon that resolution. The flood-control resolution by Mr. Curtis came later after Colonel Pick saw the possibility of basing the costs of a comprehensive plan on flood control in keeping with our established policy.

Mr. DILLINGHAM. Senator, in my opinion, there is a great need for power in the northwestern region. I am certain that it will get larger instead of smaller if our country is to progress and grow.

Senator CASE. I am taking the suggestion, however, that it was a matter of flood control. On what basis do you think that that was accomplished?

Mr. DILLINGHAM. Actually, in the principle of flood control, it is necessary that the reservoirs be kept at a minimum level rather than a maximum level. It is obvious that for maximum production of hydroelectric power out of a reservoir and the major streams of our Nation, the principle of maximum power is certainly incompatible with maximum flood protection.

Senator CASE. Do you know what the establishment of the reservoirs did in South Dakota as far as flood was concerned?

Mr. DILLINGHAM. No, sir, I am sure I could not testify on that.

Senator CASE. If you will look at the map showing the reservoirs, you will find that the effect of the plan was to flood for all time about half a million acres in South Dakota.

Mr. DILLINGHAM. Do you mean in the reservoirs?

Senator CASE. In the reservoir areas. It has taken the bottom land of the Missouri River clear across the State of South Dakota, the southern border.

Mr. DILLINGHAM. On the whole, I think the contribution of South Dakota to the Nation was well worth the price. In our own area, you cannot build a reservoir without taking productive land out of use.

Senator CASE. It has taken some productive lands in South Dakota, when you take out a half million acres.

Mr. DILLINGHAM. In our own area, when you take the property to build levees on, certainly we had to make a contribution of expensive land, for a contribution to it.

Senator CASE. What commensurate benefit do you suggest that the upstream States, Montana, the Dakotas, are to get from the program if you flood out the bottom lands along the river, if they do not get the power they need?

Mr. DILLINGHAM. That would be a question for some economist to answer, as to whether or not the benefits outrank the expenses of it.

Certainly I would think that the overall picture and the ultimate benefits would certainly exceed the donation of a few thousand acres of land.

Senator CASE. It may be that you at this time may want to suggest this as an original purpose. But I am sure that this legislation would never have been passed on the premises on which you are basing your case today.

Mr. DILLINGHAM. I am certainly not a Member of Congress, and I could not answer that question for you.

Senator CASE. I was not merely a Member of the House at the time, but I was a member of the Appropriations Committee that handled the appropriations to start the reservoirs, after the program was authorized. I can assure you that the money would never have been appropriated out of that subcommittee had it not been for assurances given to the people who lived in the Dakotas that they would get some benefit from it other than the flooding of their lands for all time to come.

Mr. DILLINGHAM. I think, if I may say so, they will get benefits from them, but it is a case of timing it.

Senator CASE. Here is another sentence in your statement that I would like to ask you about:

> It is manifest and unquestioned that there are times when the tributaries of the Missouri River, such as the James, the Little Sioux, the Platte, the Kansas River and many others, are in full flow and in order to guard against flood in the lower river valley releases from the reservoir system should be greatly restricted or perhaps on occasion cut off entirely.

Are you suggesting that the reservoirs should be operated so that there would be no water going through the generators?

Mr. DILLINGHAM. I am not exactly suggesting that, but I am suggesting that the reservoirs to the north certainly should be used as a flood protection measure, to protect the vast multitude of people.

Senator CASE (reading):

If the releases from the reservoir system should be greatly restricted or perhaps on occasion cut off entirely.

How would there be any generation of power?

Mr. DILLINGHAM. It would not be at the time they were cut off, but certainly I would suggest that the vast multitude of people living on the Missouri River to the south should not be exposed to another billion dollar loss from a flood as we had in 1951, from an unnecessary discharge out of a reservoir to the north, particularly when the Kaw River and the others that are not now protected by reservoirs are in full stage.

Senator CASE. At any time during the justifications offered for the Missouri River program was it suggested that the dams should be built in the Dakotas and Montana as means of solving the flood problems created by the Kaw and other lower rivers?

Mr. DILLINGHAM. Certainly it is part of an overall program. The basic part of the present Pick-Sloan program goes back to the famous report that was made at the expense of the citizens in the Kansas City area, primarily. That was by one of the outstanding water engineers in the United States, Mr. Faller, from California, and it was later adopted primarily as a part of the Pick-Sloan program.

That involves reservoirs and all of the tributaries, as well as the main stem of Missouri and Kaw to prevent floods.

Senator CASE. Mr. Chairman, I think in any great project and program that involves many States, you have to work out some accommodation and some compromise, some give and take, probably.

I do not believe that the case of the lower States in this matter is helped by a presentation of the extreme position that you should stop the water through the generators so that you on occasion cut off entirely the generation of power.

Mr. DILLINGHAM. That is a temporary condition at the time of the maximum flow of the other tributaries of the Missouri. It might last a week or it might last a day. But certainly it is a condition where you protect the people in the area. As you said, it is a joint proposition. Certainly one State cannot have all of the advantages or all of the disadvantages, including my State. We are not asking for that.

Senator CASE. What do you suggest be done for the industries, the homes, the hospitals, and the other essential industries, whose only chance of getting power is the reliance on the disposal of firm power from the Missouri River generating system?

Mr. DILLINGHAM. I am not enough of an electrician or engineer to answer the question. I am sure the question can be resolved without anyone getting seriously hurt over it.

Senator CASE. Do you think that if you cut off the several hundred thousand kilowatts capacity of power generated on the river, cut it off entirely at times, that you could not seriously hurt anybody?

Mr. DILLINGHAM. All I can say to that is that the very thing you are anticipating happened in Kansas City in the flood of 1951, when power was cut off over a big area there. We lived through it somehow.

Senator CASE. Would you transfer your flood-control problems to the Dakotas and park your problems there and transfer your power shortages, too?

Mr. DILLINGHAM. No, sir; I beg to differ with you. We have not transferred our problems north. We still have problems in the Kaw River that have not been solved. We are working at them.

Senator MURRAY. Would you favor the establishment of Federal steam plants in the upper area that would provide the electricity needed?

Mr. DILLINGHAM. I think that first private interests should have the opportunity to provide the services for the people that needed them in the north. Failing to do that, we may have to resort to federally owned power systems. Naturally, I would rather see the power come from private independent industry first.

Senator MURRAY. If the private power interests want to establish plants, steam plants, up there, they should be given the opportunity to do so. But if they fail to meet the needs of the area, you would be in favor of Federal plants?

Mr. DILLINGHAM. The wishes of the people must always come first. If the private companies fail to deliver the needs of the people, then Government itself steps in and does it.

Senator MURRAY. Do you not think there has been a great slowness in developing the Missouri River Basin over the years?

Mr. DILLINGHAM. Well, I would have to agree with you wholeheartedly.

Senator MURRAY. Why was that? Was that not just because the power interests did not want to let us develop low-cost power in that area? The Pick-Sloan plan, which is talked about a great deal around here lately, is not a plan at all. It was just a throwing together of two conflicting programs. It was not a program at all, not a single program. It was what Jim Patton of the Farmers Union called a "shotgun wedding." They were afraid of the Missouri Valley Authority getting in there, so the engineers and Bureau of Reclamation got busy and consolidated their forces. Is that right?

Mr. DILLINGHAM. They certainly consolidated the forces, and every bit of knowledge we had, that culminated in what is now called the Pick-Sloan program. But I would like to urge you, Mr. Chairman, to do everything you can to speed up——

Senator MURRAY. I would like to see somebody explain to me the Pick- Sloan program. I have never see it. They have talked about it a great deal, but I have never seen it.

Mr. DILLINGHAM. I am certain that the Corps of Engineers could explain it to you, and I am certain I could not.

I would like to see the program for whatever it is worth completed at the earliest possible date, and I think you will find the greatest development you ever saw in the very area we are all concerned with.

Senator CASE. Going back to this picture that you suggest, that on occasion the releases from the reservoir system should be greatly restricted or, on occasion, cut off entirely, if the releases from the reservoirs were cut off entirely, what would happen to the level of water at the intake at Omaha for the municipal uses in Omaha?

Mr. DILLINGHAM. I don't believe it would affect it. That gets back again to an engineering problem.

Senator CASE. Supposing your floods originated below Omaha, and in order to give you the protection at Kansas City, which you say you want from the Kansas River or the Kaw or any others below Omaha, you cut off the releases from the reservoirs in the Dakotas. What would happen to the municipal water, sewage disposal, and other things, in the city of Omaha?

Mr. DILLINGHAM. That would be an engineering problem, and I am certain that I would not be able to answer it. I am convinced, though, that from the completion of the Pick-Sloan program, where you have the reservoirs designed for flood protection, and some power, too, if you please, on all of the main tributaries of the main-stem rivers, that you will have enough of a system so that you will be able to control this thing and you will not have the problem that we anticipate there.

Senator CASE. If the engineers solve the problem of municipal water problems at Omaha, dependent upon the maintenance of a certain intake, who would solve the power problems for the areas above that that are dependent upon some water going through the generators?

Mr. DILLINGHAM. I think the record will show that back in 1952 the discharge was cut off at practically all of the reservoirs, and the very city of Omaha was then exposed to high water on the Missouri. I do not believe there were any serious consequences to it.

Senator CASE. You would be satisfied if the problems of either water or power were transferred somewhere else, just so they don't affect Kansas City?

Mr. DILLINGHAM. No, sir; I would not make that statement.

Senator SYMINGTON. Mr. Chairman, if the Senator from South Dakota would yield to me, he is now interrogating one of the outstanding citizens of my State. This is a problem for all of us, not just a few States.

Senator CASE. It is a problem for all of us. I do not intend to lead the witness. I simply did not relish his suggestion that on occasion the water be cut off entirely.

Senator HRUSKA. Will the Senator yield?

Senator CASE. Yes.

Senator HRUSKA. I would like to say that I am quite in sympathy with that statement. We went through several very serious floods in my State and in the city of Omaha, and we know what happened down in Kansas City, Kans., in that area, when the big flood hit in 1951. I would say that any communities upstream from there, including the South Dakota communities, if they had the chance to contemplate the damage brought there, would willingly forego the power that it would take for a few days to save that country from the devastation which was visited upon it. That fact is that it would only interrupt their convenience and perhaps be a disadvantage to them, but it would be at the advantage of saving entire and complete destruction and wiping out of existence of millions of dollars' worth of property.

Unless we can impart some value to the upstream dams by way of flood-protection qualities in that way, they cannot be justified.

The greater part of their justification is gone.

Senator CASE. Certainly, just the construction of the dams and the flooding for all time to come of all of the bottom lands in South Dakota does not create a blessing of itself.

Senator HRUSKA. I would like to suggest that in the same floods there were areas in Sioux City and Sioux Falls that were flooded, and such municipal powerplants as they had there were rendered ineffective.

I have an idea that maybe if the shoe was taken off people that far north, maybe the Senator from South Dakota would have different considerations. I do not know.

Senator CASE. We can stand some flood protection in South Dakota, but we do not need all that is created for the purpose of handling all the floodwaters below.

Senator SYMINGTON. If I may make a statement, Mr. Chairman, I deeply appreciate the Senator's comments, but I would like to say in support of the witness, that Kansas City suffered over a billion dollars loss in the 1951 flood. Naturally, we are more interested in that problem than we are the desire of South Dakota to expand its power facilities.

Senator HRUSKA. I should like to make this observation: If this shutting off of the flow of water up north, upstream, would be for extended periods, that would be something else. But I do not read the statement of the witness here, his testimony, in that regard. The way I understand it, it is for such temporary periods, and it may be a day or it may be a week, which would meet the immediate emergency.

With our grid system of electricity, that power could be on an emergency basis sent up into North and South Dakota and northeastern Iowa and northwestern Iowa which for that period of time would help overcome the situation.

Senator CASE. Perhaps the Senator will support a movement to have the Federal Government set up a steam plant that would provide the standby to take the place of the Missouri River power.

Senator HRUSKA. I do not think that follows. I do not think it is even pertinent. We have a grid system throughout the Middle West where sometimes power is shunted back and forth, sometimes, for hundreds of miles, in a circuitous fashion, for the very purpose of overcoming power shortages or defaults which exist in any one spot. I do not see why that would not obtain here.

Senator CASE. Mr. Chairman, I think what this illustrates is that there is a complex problem, but it will be resolved only by some attempt to get a coordinated approach and by some give and take.

Senator SYMINGTON. Mr. Chairman, if I may say so, as much as the distinguished Senator from South Dakota is again referring to the witness' statement, I fully agree with the distinguished Senator from Nebraska that Senator Case has misinterpreted the statement.

Senator MURRAY. Many years ago I was quite disturbed about the serious floods they were having down the Missouri River Basin every year or two. The papers would be filled every day with the stories of destruction that was taking place. Some of us got busy and we tried to prepare a program such as the Tennessee Valley Authority, which has been a great, outstanding success, recognized all

over the world. Yet we could not get anybody to support a Missouri Valley Authority.

As soon as I filed the bill for the Missouri Valley Authority, in jumps the Pick-Sloan plan, and they consolidated. Before that they were working against each other. They were consolidated then to fight the Missouri Valley Authority.

Years and years have passed and we still have the problems on our hands.

I am in favor of protecting the rights of the Northern States, which are protected by the O'Mahoney amendment. If there is a shortage of power, we can develop more power by using those lignite coal deposits that we have there and putting in steam plants.

I wonder if they would agree to that. If they would agree to putting in some steam plants and taking care of that problem, we might be able to work this thing out.

Senator CASE. Mr. Chairman, the sentence which follows the phrase to which I have alluded, reads, in Mr. Dillingham's statement:

> This, of course, would mean the curtailment of power generation for the time being but would also mean greater storage back of the reservoir dam for the development of a greater volume of hydroelectric power during subsequent periods.

A problem to which a great many of my people have been addressing themselves, and some statements here today indicate the same thing, is that even as things are today, they need more firm power. If it is contemplated that on occasion the releases will be cut off entirely so that there would be greater storage back of the reservoir dam for the development of a greater volume of hydroelectric power during subsequent periods, you are further reducing the firm power, and, therefore, increasing the secondary or dump power.

If that is to be the policy adopted, of course, that would lead to the thought that there would have to be steam plants or something to provide firm power in the case of an entire cutoff, or to firm up the hydro power that would be put to a greater degree in the secondary or dump classes.

Senator MURRAY. Are there any other comments?

Senator HRUSKA. I should just like to observe once again, Mr. Chairman, that back in 1952, when a flood threatened Omaha and Council Bluffs, as I understand it every acre-foot of storage space upstream available at that time was utilized. Had it not been utilized to the maximum degree, there was an area in Council Bluffs comprising homes for some 60,000 people that would have been destroyed outright, and many of them probably beyond rebuilding.

I believe if that problem were put up foursquare to the people of South Dakota or anywhere else up and down the line, they would have foregone, if necessary, 3 or 4 days or a week without electricity in order to prevent that catastrophe. If this statement in the testimony of Mr. Dillingham means anything else than that, I should like to be informed. And I should like in that event to join up with the Senator from South Dakota.

But I cannot for the life of me see any ghosts or any haunting specters in the testimony as given.

Senator CASE. Mr. Chairman, I do not think that that situation would ever arise under operation by the Corps of Engineers. The total storage capacity of the reservoirs under the Pick-Sloan plan will be at least three times the flow—the normal flow—of the Missouri River. I think they would be at least 50 percent greater than the largest flows of record.

Senator MURRAY. We will have to move along with this hearing or we will never get through.

Senator CASE. I would like to conclude my thought.

In any event, under a reasonable operation, a situation should never arise in which any individual flood as of any given date would ever exhaust the capacities of the completed reservoirs to contain them.

Senator HRUSKA. I think that is probably right. Since 1952 at least two major dams have been closed, and that would bear right on the point which you now make, Senator Case.

Senator CASE. Perhaps I should not have taken as much time on this but it does not seem to me necessary to suggest to freeze either one or the other out, if we wish to arrive at a reasonable solution. This is a multiple-purpose program.

Senator MURRAY. Senator Symington?

Senator SYMINGTON. May I present Mr. Willard Breidenthal, Mr. Chairman, of Kansas City, Kans.

STATEMENT OF WILLARD BREIDENTHAL, OF KANSAS CITY, KANS.

Mr. BREIDENTHAL. Mr. Chairman and Senators, I have a brief statement that I would like to make.

Senator MURRAY. You may proceed, sir.

Mr. BREIDENTHAL. My name is Willard Breidenthal. I have had the honor and pleasure of appearing before congressional committees for several years in the interest of water resource development in the Midwest.

I know you appreciate brevity, so I will state our basic request and elaborate on it as time permits. Our request is simply this: Please let the Federal reservoirs already built in the Missouri River Basin continue to operate as they do today, for service to all our people. That is the story in its briefest form.

The Federal Government has spent nearly a billion dollars in the valley, and we as citizens and taxpayers want the reservoir system to operate for the benefit of everyone. We have had a long, hard pull over two decades to get where we are today. The job is far from complete, but we have all tasted the benefits which are coming from a controlled river. There is more power—much more; there is more irrigation; there is substantial flood protection; there are better low flows for navigation, water supply, and waste disposal. Everyone in the basin has benefited. Everyone will continue to benefit more and more if we just keep calm and refrain from any hasty regulations which could hurt a part of the basin.

It has been a tough job to distribute these benefits during the past few years. We had a big flood in 1952 and then nature shut off the faucet. In the banking business we would say that the Missouri River since 1952 is like a good firm with a reduced income. It has nursed its account along so as to keep all its creditors just barely satisfied.

But the point is, we have been able to do it by careful planning and a lot of patience. Nobody in the Midwest as yet has all the water he wants, but we are all sharing in the benefits which are available. What is more, we are still solvent and there are better days ahead.

In the Missouri River Basin we play as a team. We have an operation center set up in Omaha with the Corps of Engineers. Everybody brings his water problems to this central control group: the States, the cities, and the various Federal agencies. We talk it over, look the facts in the face, and check up on our bank account—our water bank account, if you please. They even use electronic computers to explore all the possibilities and make certain that human brains do not overlook the optimum solution.

We feel that everyone in the basin has been given certain rights by Congress, and even in a drought period these rights are being maintained. One of these days the weather will return to normal. Then we can have even more irrigation and more power and adequate low water flows for navigation and water supply. Our people are going ahead and spending local money in anticipation of an increasing water supply. This local effort is basinwide.

The lower areas, for example, are building more docks for handling river freight. There is not as much water as we need, but we know they are beginning to store water upstream to create a balance for the years ahead.

We are going along with our neighbors upstream who do not have all the water they want either. But we are all getting along, even in this transition period.

In the meantime, until there is water in abundance, we want your concurrence in our present plan to keep the valley running—perhaps in low gear—but running the best we can with a limited supply. Every interest and every section of our valley are carefully considered and we think everybody is being given fair play. We ask that nothing be done here to establish priorities in a drought period which will work additional hardship or inequity on any group.

The Missouri River Basin, even under these trying circumstances, is beginning to pay dividends on your investment. If we are given the opportunity to continue without disruption of the overall plan, the Midwest can and will become a source of strength and profit for all the Nation.

The job that is being done is being done well. Nobody has had all the water that they want, sir, during this period of drought since 1951. The available storage is being increased year by year with the closure of these new structures.

At the time of the beginning of the drought period there were less than 20 million feet in storage. The maximum provided for are 75 million, of which 50 million are available for flood protection, and forty-odd million for beneficial uses, with permanent storage of about 18 million.

Obviously, when that storage is obtained, there will be three times as much water available for power as there is today. I am told that even during these restricted periods of rainfall, 90 percent of the water released produces power.

I heard Senator Case's questions, but I did not know that the generation of power was a Federal consideration; I mean at Federal

expense. I understand the TVA borrows their money by issuing revenue bonds against the power.

Senator CASE. They do not at the present time. They want to do that.

Mr. BREIDENTHAL. They are asking for that now, a $750 million authority.

I do not know that they have any firming up of their power by coal plants at this time.

Senator CASE. Yes; there are some steam plants. They were built with appropriated funds.

Mr. BREIDENTHAL. Well, we are making no objection to anything the Congress does with reference to those matters. We did not favor the Missouri Valley Authority at the time it was proposed. There were reasons for that. We do not now want to turn the projects over for power as the major consideration. I think all of those projects have been built under the authority of the 1936 Flood Act, as it has been amended since 1936. The prime consideration in that case was flood protection.

Then in 1944 it was coupled with the Department of the Interior, called the Pick-Sloan plan. That is the way we know it now. We are in entire sympathy with the operation that has been perfected during these last 2 years, during the scarce period. We believe it will be operated to the satisfaction of everyone during the coming year when we expect a more plentiful supply of water.

Senator MURRAY. Do you have any comments?

Senator CASE. Mr. Chairman, having pointed out a sentence in the statement of the preceding witness, I would like to point out two sentences in this statement which I think are definitely constructive.

In a portion of the statement which Mr. Breidenthal read, he said:

> One of these days the weather will return to normal. Then we can have even more irrigation and more power and adequate low-water flows for navigation and water supply.

I think that is constructive and helpful.

Mr. BREIDENTHAL. Do you find objection to the statement, Senator?

Senator CASE. No; I did not. I was commending you on it.

Mr. BREIDENTHAL. Thank you.

I would like to introduce Senator Joseph McDowell, of the Kansas Legislature.

STATEMENT OF JOSEPH McDOWELL, STATE SENATOR, KANSAS LEGISLATURE, AND VICE CHAIRMAN OF THE KANSAS SENATE WATER RESOURCES COMMITTEE

Mr. McDOWELL. Members of the committee, as a member of the Prairie State Legislature, if I had known in the last 10 years what I have known today, we would be a little more careful when we pass these resolutions and send them back here, memorializing Congress to do things.

But as to these three resolutions, if we had known about them before our legislature had adjourned, I am sure we would have gone back a few years to the Pick-Sloan plan as it is now administered.

I am a vice chairman of the water-resources committee of the Kansas State Legislature. Because of my general interest in the water re-

sources of the State of Kansas and the lower Missouri River Basin, I am speaking as a representative of the Missouri-Arkansas Basins Flood Control and Conservation Association.

We have been fighting the water problems in our area for some 20 years. Our local concern has been primarily with flood control, low-water flows, and navigation. However, we have always recognized the interest in power and irrigation which loom large in the thinking of the upper reaches of our basin. We long ago recognized that the Missouri River and its tributaries cannot be developed successfully unless all interests are served. It would cost too much and it would be an obvious waste of a taxpayer's money to develop the basin solely for the purpose of navigation, or for irrigation alone, or for the primary purpose of producing power.

Back in the days of the Pick-Sloan plan we agreed to this obvious basinwide aspect of the potential development. We agreed that some of our much-needed lower valley construction might have to be deferred so that the large reservoirs upstream could be started. These upstream reservoirs now serve everyone to the extent that water is available. They are now in operation and their benefits are being experienced by people throughout the entire Missouri River Basin—upstream and downstream.

We feel that we have gone along with the interests upstream by delaying our request for a large development program in the lower valley. Now, we feel that what benefits are available from the upstream reservoirs should be shared by all alike, while we start on our program of downstream development. To date, we have been quite successful in this sharing program in spite of the fact that water is still very scarce. We have not had adequate flows in the Missouri River since 1952. We have watched with great concern as the reservoirs have progressed at Garrison, Oahe, and Fort Randall and Gavins Point. We have spent considerable money so that we too may reap some of the benefits from these structures. I refer to the construction of protection levees at Omaha, Kansas City, and other points, and to the loading docks throughout the entire lower valley which will permit the handling of growing river traffic.

As I said before, we do not have enough water to satisfy our present needs in the lower 700 miles of river. I understand that people upstream also would like more water for power. It is a fact, however, that waterpower has increased some fourfold within the last few years. We feel that the use of storage to permit such a power increase in a period of serious drought is an indication of our good faith in trying to cooperate throughout the whole basin.

Our interest today is to assure our people that there will be no major shift of priorities from those we have today. We want power and navigation to proceed simultaneously to the extent that our water supplies will permit.

Normalcy of runoff will return to the Midwest as it always has, When that day comes, we will all have plenty of water. Until that time, we wish to request Congress to do nothing which would curtail the operations in the lower valley. We feel we are entitled to such consideration, and we are spending a lot of local money on the assumption that the program of sharing will continue as it is today. Other interests upstream are sharing in today's benefits, and rightly so, but we do not wish to sacrifice one interest for another.

Congress acquired its original authority to engage in river development projects as a result of its determination that certain rivers were "navigable," and therefore, Federal control over them was authorized by the "commerce" clause of our Constitution. The consideration of navigation, therefore, is the keystone upon which rests the other important benefits of control of our rivers and the operation of multiple-purpose dams; domestic, irrigation, flood control, industrial use, power, production, and stream sanitation.

We sincerely request that you take no steps to modify an operation program which, to our minds, is just and equitable, and which will improve for all concerned as soon as there is an adequate rainfall.

There are several things, anticipating some questions, that I would like to say in addition.

No. 1, we in Kansas do not want to quarrel with the Northern States. If you want to build steam plants up there, and find a way to do it, personally I am in favor that you do it.

No. 2, it is my belief that the Pick-Sloan plan is a reality and is in existence, and the Army engineers are doing an excellent job, and we are on the verge of seeing complete flood protection in the Missouri Basin.

There are only two things we need: No. 1 is money, and No. 2 is a normal rainfall out there, and we will have all of these problems solved.

Money will take care of the completion of the Wahoo and the Big Bend Reservoir on the Missouri, and we hope will take care of the reservoirs and dams on the Kansas tributary, and that will solve my problems.

My statement is not as good as the one Mr. Dillingham read. I would like to accept his.

There are 2 or 3 things that I did want to call to your attention, and then I will not take any more time.

It seems to me that what we are here for today is these resolutions of the three States indicate that there might be some kind of a fight between those who want power and those who want navigation. Of course, if water is coming through the dams for power, it is flowing on down the river for navigation. I do not see that there would be any particular conflict there.

I can see a conflict between the use of the dams primarily for power and for flood control, because the situation arises where the water has to be cut off in order to let the floodwaters down below get out of the way. There are other times when they might have to be cut off.

I do not have any idea, of course, what was in the minds of the Congress when the O'Mahoney-Millikin amendment was adopted. But in reading the record, I find the document 191, which, as I interpret it, was the report of the Department of the Interior, which I presume would be the Sloan end of the Pick-Sloan plan. This statement on page 134 concerning whether or not it was intended that power should have priority over flood control and navigation says:

> Most of the powerplants proposed in the plan for developing the water resources of the Missouri River Basin, will generate electrical use for use in pumping water for irrigation, and for domestic, commercial, and industrial uses. A few will be used almost exclusively for irrigation purposes. In most cases the operations of the powerplants will be governed by the storing and releasing of water for

purposes other than power generation, such as flood control, irrigation, navigation, and miscellaneous uses.

On the following page, the report says:

The operating characteristics of the proposed hydroelectric developments will be such as to provide somewhat more seasonal power during the irrigation season than will be required for all irrigation pumping contemplated.

So it looks like the Interior Department did not intend to make power primary to flood control and navigation when they prepared their report.

The report that I come to next is Document 475, which was the one from General Pick, the Army engineers report.

It says, on page 29:

In addition to providing flood control benefits on the Missouri and Mississippi Rivers, the comprehensive plan would also provide for the most efficient utilization of the waters of the Missouri River Basin for all purposes, including the irrigation, navigation, and, third, power.

It seems to me that the engineers in their proposed plan were putting power down on the list.

Then when a combined report, in Senate Document 247, was prepared, in 1944, with representatives from the engineers and the Bureau of Reclamation who reviewed the features of these plans, they state, when they outline what is to be done, that:

The plan provides as soon as the substitute storage is built on the main stem, the Fort Peck Reservoir will be operated as a multiple-purpose reservoir primarily in the interests of irrigation—

not for making any power.

The Garrison Dam Reservoir permits the utilization of approximately 160 feet of head for the development of hydroelectric power. The Oahe Dam is required in connection with the irrigation of 750,000 acres of land, as well as to provide useful storage for flood control, navigation, and—

third—

the development of hydroelectric power.

Document 191 contemplates a pool level of 1,365 mean sea level in order not to interfere with the Big Bend powerplant located near the upper limits of the reservoir. The reservoirs as outlined above and agreed upon in the joint engineers' report will provide the desired degree of flood control, supply of needs of irrigation, as well as furnish cycle storage for navigation during prolonged periods. The plan also utilizes practically all of the available power head in the Missouri River between the mouth of the Yellowstone and Gavins Point Dam.

Again, power is incidental and last on the list.

When they passed the Flood Control Act of 1944, and that, of course, as has been pointed out, is a Flood Control Act, it is my understanding that the only power Congress has over these rivers is first to determine that they are navigable, and then, under the commerce clause, to take steps to use them.

In the preamble to the 1944 act, it says:

In connection with the exercise of the jurisdiction over the rivers of the Nation, through the construction of works of improvement, for navigation or flood control, as herein authorized, it is declared to be the policy of the Congress—

and so on—

for all purposes of the waters of the Nation's rivers to facilitate the consideration of projects on the basis of comprehensive and coordinated development and to limit the authorization and construction of navigation works to those in

which a substantial benefit to navigation will be realized therefrom, and, which can be operated consistently with appropriate and economic use of the waters of such rivers by other users.

So it would appear to me that this thing started out as flood control only, however, on those rivers where we could work these other things in and get everybody united behind them.

When we reviewed this, the Missouri Basin Interagency Committee, in April 1951, just before the big flood in Kansas City and down south of us, when they came to the question of where power fitted into this picture, on page 68 they said:

The water requirements for the generation of hydroelectric power are not consumptive in nature, except for relatively insignificant reservoir evaporation losses resulting from impounding operations for power purposes. However, the realization of the maximum power potential provided by the water passing through the dams of the reservoir system requires that power operations be carefully integrated into the proposed manner of operation of the overall system.

In general, releases from the main stem reservoir system will be dictated largely by nonpower uses, and normally the development of hydroelectric power is considered as incidental to the operation of the reservoir system for other multipurpose objectives of the comprehensive plan.

The engineers have made a public statement, and they are here and can back it up, I am sure, that when these dams are completed, 95 percent—when all the reservoirs are in operation, 95 percent—of the power potential of the reservoirs will be realized. That is just about as firm as you can get power, when you get 95 percent of it.

Today there have been some complaints, although there is no evidence to back it up, that water is being used up there that ought to be kept up there for power, being used for navigation or something else.

The truth of the matter is, the engineers will tell you, that 90 percent of all water that leaves those reservoirs is used for power purposes today.

It just seems to me that we are just a little bit ahead of the horse. If we can wait until the reservoirs are built, we are going to have power as well as the primary considerations of flood control, irrigation, and the other items.

Thank you.

Senator MURRAY. Thank you very much.

We have a lot of witnesses here who wish to testify and get away. I am perfectly willing to stay here until 6 o'clock tonight, if necessary, but I do not think we should tie these witnesses up here and string them along. A lot of this material that is being put into the record in the way of debate here could be put in when we come to the final study of the program. We ought to try to speed up the hearing here this afternoon by listening to the witnesses.

Senator HRUSKA. In the light of your suggestion about hearing witnesses, Mr. Chairman, and I am in full sympathy with it, I will waive further questions at this time.

Senator MURRAY. Thank you.

The next witness is Virgil Hanlon, manager, East River Electric Power Cooperative, Madison, S. Dak.

STATEMENT OF V. T. HANLON, MANAGER, EAST RIVER ELECTRIC POWER COOPERATIVE, INC., MADISON, S. DAK.

Mr. HANLON. Mr. Chairman and gentlemen of the committee, my name is V. T. Hanlon. I am the manager of the East River Electric Power Cooperative, a transmission rural electric financed cooperative serving 21 member distribution cooperatives, who in turn serve approximately 50,000 farm families in eastern South Dakota. These farm families constitute approximately one-third of the population of the State of South Dakota. I have been a resident of South Dakota all of my life and have worked for the rural electric cooperatives for 18 years. During that time I have studied the Missouri Basin program very closely. My formal education is in economics and business administration. I am the chairman of the South Dakota Rural Electric Association Power Supply Committee and a member of Governor Joe Foss' electric power committee.

I might say at the outset that I do not think we have a great conflict with flood control. We know it is the primary purpose of the program. This might clear up the thinking, as I go through my testimony.

Rural electrification in South Dakota is comparatively recent. Prior to the Flood Control Act of 1944, few cooperatives could get loans from the Rural Electrification Administration because there was a shortage of wholesale electric power and because the cost of power then was extremely high. Wholesale power costs averaged approximately 14 mills per kilowatt-hour, ranging from 12 to 22 mills per kilowatt-hour. When the dams on the Missouri River were authorized, giving promise of 5.5 mills per kilowatt-hour, rural electrification loans became feasible. World War II prevented any major construction of cooperative facilities until 1947. Percentage of electrified farms in South Dakota rose during the past 10 years from the lowest in the Nation to the present saturation level of approximately 90 percent.

Loans from the Rural Electrification Administration and the development of the Missouri Basin by the United States Bureau of Reclamation and the Corps of Army Engineers made rural electrification possible in South Dakota. For this we are very grateful to our Congress and to our Government.

We are here today because we are disappointed in the manner that our Government is administrating the operation of these facilities that have meant so much to us. I am speaking of the United States Bureau of Reclamation and the Corps of the United States Army Engineers. I charge that these two agencies are mismanaging the resources of the people and of this Nation.

As a representative of the rural electric cooperatives and their members I feel I have a right to complain because the rural electric cooperatives and other preference customers of electric power are paying for the major part of the program. We want to and we expect to pay for our part—but we cannot honestly watch the program being mismanaged to the extent that we cannot afford to pay for it. I want to call to your attention our financial obligation in the development program of the Missouri River Basin. In the economic analysis, Missouri River Basin project prepared by the Bureau of Reclamation,

dated April 1955, on sheet 2 is a summary of the allocations and repayment totals for the whole Missouri River Basin. This includes both Bureau of Reclamation projects and the projects of the Corps of Army Engineers.

(The summary referred to follows:)

Allocation and repayment

	Allocation	Repayment
Reimbursable:		
Irrigation	$2,235,749,000	$385,528,000
Commercial power (includes $53,814,000 for interest during construction)	1,144,238,000	[1] 3,066,405,000
Municipal water (includes $389,000 interest during construction)	7,600,000	[1] 7,600,000
Recreation	16,037,000	
Fish and wildlife	342,000	
Buford-Trenton work, investigations of inactive units and other Interior agencies	55,567,000	
Total reimbursable	3,459,533,000	3,459,533,000
Nonreimbursable:		
Flood control and navigation	1,849,576,000	
Fish and wildlife	1,950,000	
Rapid City Air Base water supply (includes $37,000 for interest during construction)	1,037,000	
Total nonreimbursable	1,852,563,000	
Deferred:		
Investigations of potential units	6,665,000	
Future power system additions	56,978,000	[2]
Total deferred	63,643,000	
Total allocation and repayment	5,375,739,000	[3] 3,459,533,000

[1] Also interest paid on unpaid balance of cost allocated to this function.
[2] Considered self-liquidating.
[3] Exclusive of payments for self-liquidating future additions to the power system.

Mr. HANLON. I would like to briefly point out what is on that page. You will note that the total, the corps and Bureau of Reclamation facilities, is around $5 billion. You will notice the repayment amount of that is $3,459,533,000. You will also notice at the top that irrigation allocation of cost is $2,235,749,000, but the repayment schedule is only $385,528,000.

Going down to power, you will notice the allocation against the cost of power, and it is $1,144,238,000, and power is to repay $3,066,405,000.

You will also note further that the municipal water people take care of themselves, but there are $16 million in recreation, and $342,000 in fish and wildlife, plus the Buford-Trenton work of $55,567,000 that must be paid for by power customers.

So of the total reimbursable items out of this $5 billion, more than three-fifths of it is going to be paid for by power.

You will note from the summary that the allocation of costs to power is $1,144,238,000 while the repayment to be paid by power is $3,066,405,000, a ratio of about 3 to 1.

You will note also that the preference consumers of power are expected to pay the major part of the irrigation cost and all of the cost for recreation and fish and wildlife.

I should not say "all the cost." That should be corrected. Fish and wildlife have costs that are nonreimbursable.

Though we believe the power allocation is well padded with costs that should go elsewhere, we do not complain about taking care of the charges the water users of irrigation cannot afford.

I believe the above figures should show you why we have a definite concern about what is happening to this program. I believe that Congress will also be concerned when we complete our testimony. The United States Bureau of Reclamation, having authority to market the power generated from the Army engineer dams, is the agency we have depended upon to protect the rights of preference customers. We believe they are completely failing in this responsibility and in fact, they could be accused of double-crossing the people they serve.

The Bureau of Reclamation, representing the Government and the people, should be the agency acting as the liaison between the electric consumers and the Corps of Army Engineers. Instead of representing the Government and the people they are now acting as a servant of the Corps of Army Engineers.

Let me illustrate this point. As an example let us refer to the allocated costs of Fort Randall, a completed dam. On page 92 in the report of the Missouri Basin Survey Commission entitled, "Missouri: Land and Water" there is a wide difference between the figures supplied by the Corps of Army Engineers and the Bureau of Reclamation. Then, in 1952, the Bureau of Reclamation set up allocations on Fort Randall, as follows:

Power	$61,800,000
Flood control and navigation	136,685,000
Making a total cost of	198,485,000

Fort Randall does not have any irrigation benefits; therefore, no allocated costs. At this time the primary purpose of Fort Randall was to be flood control and the people of our area were told that this was the main purpose of the dam. In 1955 in the Economic Analysis Missouri River Basin Projects—table 5, sheet 7 of 7—the same Government agency, the Bureau of Reclamation, now sets up the following allocations:

Power	$139,922,000
Flood control and navigation	54,563,000
Recreation	515,000

While flood control and navigation costs decrease tremendously the costs against power increase 126 percent. You will note also that the approximate completed cost of the dam remains about the same as the figures supplied by the Bureau of Reclamation in 1952. To me this proves that the Corps of Army Engineers is the dominant of the two organizations and that the Bureau of Reclamation has submitted to them to the disadvantage of the power users and possibly the whole Missouri Basin program.

The above figures from the economic analysis Missouri Basin projects prove that the power users are going to have to pay for the boat basins, fish and wildlife, irrigation, and under the new allocations of costs, even for navigation. The power company advertisements accuse the cooperatives of being subsidized when actually it is the cooperatives that are subsidizing the other parts of this development.

Though the power companies are buying about 38 percent of the power from the dams, much more than the cooperatives, they are not paying their own way. The power that they procure from the Bureau of Reclamation is averaging approximately 3 mills and in some cases close to 2 mills while the cooperatives and other preference users are paying 5.5 mills per kilowatt-hour.

In calendar year 1956, according to Mr. W. A. Dexheimer, Commissioner for the Bureau of Reclamation, the private power companies bought 37.5 percent of the power, paying an average of 3 mills, while the firm power prices to the preference users average slightly more than 5 mills. Though they are buying dump and secondary power these same private power companies actually get a preference in transmission facilities over the rural electric cooperatives and other preference users. Mr. Dexheimer's letter will be introduced as testimony by Harlan Severson, another witness.

If the preference users are to pay the reimbursable costs of these dams, then they have a just right to a voice in how the water stored in the reservoirs is used. Rural electric cooperatives of South Dakota assert that power generation has a priority over navigation. The Flood Control Act of 1944 meant that they had such a priority and if not then the Government certainly cannot expect to get paid for the dams from the revenues of power.

We are not against the use of the river for navigation, but we are against the consumption of our waters for such. Nowhere in the Nation is water actually consumed for navigation except on the Missouri River. In the Mississippi Valley, where the rainfall is twice that of the semiarid Missouri Basin, slack water navigation was designed in the river, but on the Missouri River the Corps of Engineers had designed a navigation system that takes free flowing navigation.

Navigation actually consumes water. The only way the Army can get water for free flowing navigation is to jeopardize the pay-out status of the basin program and by stealing such from electric power and eventually stealing it from other water users upstream. The results are that the power cannot pay the reimbursable costs and therefore, irrigation and other upstream uses can never be developed.

We recognize that irrigation has priority over power, but as long as power is paying the bill, certainly power should have priority over navigation.

It also should be pointed out that the rural electric cooperatives and other preference users that are paying for irrigation costs should have the right to use the same water for power, if such is available. If the Corps of Engineers would provide carryover storage in our reservoirs for winter power purposes instead of giving priority to navigation, then the Federal Government would get a higher financial return and the cooperatives would not keep facing the increased cost of power and the present power shortage. This statement will be backed up with facts from other witnesses.

I would like to enter into the records a letter recently written to me by Assistant Secretary of Interior, Fred Aandahl, dated February 19, 1957.

(The letter referred to follows:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 19, 1957

Mr. V. T. HANLON,
Manager, East River Electric Power Cooperative, Inc.,
Madison, S. Dak.

MY DEAR MR. HANLON: This is in further reply to your letter of October 26, 1956, concerning the feasibility of supplying additional firm power to East River Electric Power Cooperative in the years 1958–61 above the 62,300 kilowatts presently allotted and contracted to the cooperative.

The Bureau of Reclamation has recently prepared estimates of the Federal power to be available in the eastern area of the eastern division, Missouri River Basin, for the years 1958–60, inclusive. These estimates are based on studies of probable reservoir operations at the Corps of Engineers' dams which have been made by that agency, taking into consideration various possible water conditions. The firm power and firm peaking power estimated to be available, as shown by these studies, are compared in the table appearing below with the firm power allotments that have so far been made. It is to be noted that these figures are for a newly defined eastern area which now includes the area east of Fort Peck that was formerly considered to be in the western area of the eastern division.

[Megawatts, at load]

	1958	1959	1960
Median water conditions: [1]			
Firm power available	551	608	605
Firm power commitments	568	568	560
Surplus firm power	−17	40	45
Peaking power available	0	45	117
Adverse water conditions: [2]			
Firm power available	452	563	605
Firm power commitments	568	568	560
Surplus firm power	−116	−5	45
Peaking power available	0	0	55

[1] Assumes median water conditions in each year from 1957 up to and including the year for which the figures are given.
[2] Assumes median water conditions in 1957 and each later year up to the year in question, with adverse water conditions in that year.

The estimates of the power to be available represent the anticipated December output of the Garrison, Fort Randall, and Gavins Point powerplants, plus the two large units of the Fort Peck powerplant. These units will have a rated capacity of 890,000 kilowatts, including the 4th and 5th units at Garrison which are scheduled to be installed in 1959 and 1960, respectively. The figures for commitments comprise the 1954 allotments in the area formerly termed the eastern area, plus the estimated requirements through 1958 of preference-type customers in the area between Fort Peck and the old eastern area which was formerly in the western area.

Firm power is taken as the peaking power for which sufficient energy will be available under median water conditions to supply firm loads up to the amounts in kilowatts indicated to be available, at the expected load factor. If water conditions are less favorable than in a median year, the Bureau of Reclamation will endeavor to purchase energy to meet the energy deficiency up to this point, provided that funds are appropriated by the Congress to pay for such purchases. It is not the policy of this Department to authorize purchase of energy in order to firm up peaking capacity for which under median conditions there is no available energy. Instead, any remaining peaking power that may be available such as is shown in the table will be sold to customers which are in a position to firm it up with energy of their own, which may be from production in their own plants or acquired by purchase from other systems.

The Bureau of Reclamation calls attention to the fact that the figures in the table are subject to considerable qualification. As you mentioned in your letter not all allottees may take up their allotments in full. There are also others which have early contracts that cover their estimated requirements for years

considerably beyond 1958. These quite probably will not need all the power committed to them in 1958 and the first few years immediately following. These circumstances may to a degree ease the situation in 1958 and 1959 that would arise with adverse water conditions. On the other hand, the adverse conditions on which the figures for power availability are based are not the worst that are possible. A continuation of generally unfavorable water conditions during the next few years, following those of the last 3 years, could reduce the supply to lower levels than are indicated in the table.

Incidentally, it is to be noted that the Air Force expects to reassign a large portion of the firm power allotted to it for the Ellsworth Air Force Base to its base at Lincoln, Nebr. The Air Force expects to require the power at Lincoln as soon as necessary arrangements for delivery are completed. With respect to South Dakota State loads on which you comment, the Bureau has executed contracts aggregating 1,660 kilowatts of the 10,000 kilowatts allocated. No future date has been established by which alloted power must be placed under contract and the opportunity must be kept open for the State to contract for additional power. We do not believe it would be proper for us to withdraw allotments until such time as a failure to contract for power would result in unsold power.

The uncertainty of any power in 1958 and 1959 which will be surplus to present commitments makes it infeasible at this time to commit any additional firm power for delivery in those years. It presently appears that it would be possible at the appropriate time to make some additional commitments for delivery in 1960. However, it is still quite uncertain how much can be committed for delivery in that year and there will undoubtedly be a large number of preference-type customers which will desire to obtain additional amounts. The same considerations apply to any further power that may be available in 1961. The Department of the Interior, therefore, does not consider that it is appropriate to make further commitments in the eastern area of the eastern division at this time. It should also be pointed out that in any possible allotment of uncontracted power, the needs of many other customers would have to be considered together with your request for additional power. We do not believe it would be equitable to consider East River's needs to the exclusion of other preference customers in the market area.

There is, of course, always the possibility that some additional Federal power can be supplied before 1962, but we can give no assurance as to how much, if any, could be provided or as to when it would be available. We are sure you understand, of course, that if water conditions are favorable or additional power is available for any other reason, East River, the same as other customers, may take power above its contract rights so long as the additional quantities of power will permit.

Sincerely yours,

FRED G. AANDAHL,
Secretary of the Interior.

Mr. HANLON. I will not read the letter from Secretary Aandahl in detail. I do wish to say, however, that on the first page is a tabulation of what we can expect for the power users in the basin.

You will notice the first table is under median water conditions, and I think we can disregard that, because we do not have median water conditions.

The second table is adverse water conditions, and we have been in that bracket for several years, and it looks that way again for this year.

You will notice that the Federal Government has 452 megawatts of firm power available, but they have contracted for 568,000 kilowatts, giving them a shortage of 116,000 kilowatts of power that they have to deliver before 1958.

That is on the terms, you will note by the footnote, that this year was a median water year, and next year was an adverse water year.

Actually, we are in an adverse water year at this time.

If you will read further in the letter, you will find out that Mr. Aandahl says that is not the worst to be expected. You can see that we have a power shortage facing us.

There are several important things in this letter that should be pointed out to these committees.

First, note that out of 890,000 kilowatts of generation on the mainstem dams, the amount of firm power available in 1960 will be only 605,000 kilowatts. This tremendous amount of machine capacity that will not be firmed up represents mismanagement by both of the Government agencies, and points out the necessity for them to make arrangements for thermal generation either by leasing or the construction of thermal plants.

More important to my part of the discussion is the fact that should we have median water conditions up through 1958, and this is very doubtful considering the prospects for 1957, which are for an adverse year, then the Bureau of Reclamation will be short 116,000 kilowatts of firm energy.

Mr. Aandahl points out in his letter that the Bureau of Reclamation—

> will endeavor to purchase energy to meet the energy deficiency up to this point, provided that funds are appropriated by the Congress to pay for such purchases.

But Mr. Aandahl did not point out that the Bureau of Reclamation has not even made arrangements for such an amount of power and it can be conclusively proven that there is not that amount of capacity available in the marketing area. The solution is for the Bureau to lease or build generating plants.

Assistant Secretary Aandahl and the United States Bureau of Reclamation on February 21, 1955, in a written statement gave us the following answer to the problem:

> However, when a commitment is once made by the Bureau on its ability to supply firm power, it is the Government's intent to firmly meet such commitments either from its own resources or by the purchasing in event of less than average water year. However, if, under unforeseeable circumstances, the Bureau fails to meet the firm power committed, adjustment of charges will be made as provided in the contracts.

It is very doubtful that our farmers are going to appreciate the fact that the Bureau won't charge us for power that they cannot deliver while they have to brown out their farms and the people in the basin will have to curtail the uses because of lack of foresight by the Bureau of Reclamation.

Should the adverse water year show up in 1958 there would be no possible means for anyone building generation on such a short notice. We feel that as long as we are paying firm power prices that then we should expect firm power, and the Bureau of Reclamation should definitely have a responsibility of fulfilling its contracts. If not, then the power being sold to the cooperatives should not be sold at 5.5 mills, but should be sold at 3 mills.

At the same time that the Bureau is facing the lack of energy it has still requested that the cooperatives who will build steam generation, or contemplate such, operate their plants at their normal load factor rather than supply energy to the Bureau of Reclamation so it can firm up more energy to be returned to them.

The engineering facts to show how this can be done, it is my understanding, are to be supplied by others who are going to testify.

After painting this dismal picture you will find further in Mr. Aandahl's letter:

> On the other hand, the "adverse" conditions on which the figures of power availability are based are not the worst that are possible. A continuation of generally unfavorable water conditions during the next few years, following those of the last 3 years, can reduce the supply to lower levels than are indicated in the table.

You can certainly see why we are concerned and it points out mismanagement by both of the organizations.

I accuse both the Bureau of Reclamation and the Corps of Army Engineers as jointly responsible for this mismanagement. This can be documented in a letter from Brig. Gen. W. E. Potter, former division engineer of the Army engineers who states in a letter of December 23, 1955:

> A great number of both long-range and short-range operation studies have been made, and examined jointly, to thoroughly explore all aspects of the various problems and arrive at sound bases for design, construction, and operation of the Missouri River main-stem projects. The Bureau and the corps have been and are in agreement on these items and there has been a general agreement by the Federal Power Commission, the Public Health Service, State officials, and other Federal agencies directly concerned.

Should the Bureau of Reclamation be able to buy power in the basin at the prices charged by the power suppliers and purchased on a normal load factor basis, such as the Bureau expects to have generation used, it would cost the Federal Government approximately $5 million for 1 year of shortage.

At the same time, the Army engineers point out that they saved the shippers on the Missouri River in 1955, in the hauling of 410,000 tons of freight, $1,265,000. The freight traffic in 1956 was even less than that of 1955. And, according to the engineers' own figures, it cost them $10 million for construction and $6.1 million for maintenance of the 762 miles of channel.

This does not include the cost of the Coast Guard and others making navigation possible. Even the most optimistic views of the Army engineers say they will carry 5 million tons of freight a year on the river, saving the shippers $15 million which will still represent a cost to the taxpayers of this country.

If the precedent of using water for free flowing navigation continues and navigation traffic expands we will find ourselves in a worse condition in future years than the problem that faces us now.

We are only talking about the priorities of navigation and power, but we recognize that the depletion of waters needed upstream are more important to the people of the Missouri Basin than either of these two uses.

Time does not permit me to document all of the many complaints we have about the Bureau of Reclamation, both from the standpoint of operations and policy, but I shall try to point out some representative discrepancies in their policy and operation.

One example is their policy of charging for displacement of power and energy in their system. A Bureau customer buying part of its power from the United States Bureau of Reclamation and also having its own generation can bring about this situation:

At point A the United States Bureau of Reclamation has hydropower while at point B a hundred miles from the hydrogeneration, the customer has its own source of steam generation. It is possible to use all of the hydropower and energy near point A and use the thermal generation near point B. This could be called displacement. This naturally gives a transmission line a greater expanded capacity and saves the losses in moving the energy and power over the long line. This is definitely an advantage to the United States Bureau of Reclamation. What does the Bureau policy do in such an instance?

The policy demands a payment of nonexisting losses plus a charge of 1 mill per kilowatt-hour. This not only discourages the displacement of firm energy on the periphery of the Bureau's system, but actually penalizes it. This policy eliminates the efficiencies and economies of power pool operation.

When we asked the Bureau to change this policy or to give us reasons for it, this is the answer we received:

> All wheeling arrangements entered into by the Bureau, either the Bureau is wheeling power over the system of others or is wheeling power of others over the Bureau's system, have been approached as true wheeling arrangements without regard to the effect of power displacement. The Department does not anticipate that the present policy will be changed.

It is not only once that we have asked them to change this, but many times.

Earlier I stated that I would point out how the power companies who are buying the dump power that creates no earnings for the Bureau of Reclamation are given preference on facilities over the people who are paying firm power prices.

First, nearly all the Bureau's substations are located strategically to fit into the load centers of the nonpreference customers. This means that the preference customers have to spend additional dollars to get to their substation sites.

In the case of the United States Bureau of Reclamation's system supplying the East River Electric Power Cooperative the cooperatives are getting unregulated voltages from the Bureau substations while Northwestern Public Service Co., a power company buying only secondary power, gets regulated voltage.

To show what discrimination in the location of substations means take the example of the city of Madison, S. Dak., a municipality and a preference user that is my hometown. If the city of Madison, S. Dak., wishes to buy secondary power they not only have to pay for the secondary power at the Bureau's rates, but also have to pay an additional mill to have it wheeled.

The nonpreference customer, such as Northwestern Public Service Co., gets it delivered to its system without any wheeling charges or a mill cheaper than the preference customer.

The Bureau of Reclamation explained that the reason this situation was created is because their policy is to sell secondary power off of their system without adding additional facilities or providing additional investment. At the same time there is a new substation being built at Yankton, S. Dak., from 115 kilovolts to 34.5 kilovolts to supply Northwestern Public Service Co. when there are no preference users in the area.

I should correct that. We do have the State insane hospital there, but we do not have too many people in it.

Other witnesses here can show you where transformer capacity is put in the substation at Remsen, Iowa, I believe, for Iowa Public Service Co. to buy dump power and only recently in your budget Congress approved an addition to the substation at Summit, S. Dak., to supply Otter Tail Power Co., another nonpreference user.

While these millions of dollars are being spent for facilities to show preference to the people buying the non-profitable power from the Federal Government, East River Electric Power Cooperative recently has been refused a request to have the Bureau of Reclamation supply them with a standard type of oil circuit breaker to provide better service to their members.

The Bureau of Reclamation has operated with some Oerlikon oil circuit breakers that have been giving trouble ever since they were first installed. This is actually a small item in the overall system, but still the Bureau refuses to supply a good reliable type of breaker to give dependable service to the preference users. Though we have taken this problem up with every office of the Bureau of Reclamation and the Department of the Interior, we have not as yet had any answer except negative. We have even offered to supply our own breakers to prove that their services are inadequate because of poor operational practices.

Another example of the Bureau's attitude: A few years ago the Bureau of Reclamation had to discontinue service on a segment of our system because of some repairs that had to be made at the generating station at Fort Randall. The Bureau of Reclamation asked us to buy power from Northern States Power Co. to take care of this shutdown of their service. Our understanding from their dispatcher was we should make the arrangements to buy the power from Northern States Power Co. for the Bureau.

After we had made the arrangements and had received a bill from the Northern States Power Co. for $9,000 for about 2 hours of operation, the Bureau of Reclamation refused to honor the bill. They said they would give us credit under the credit provisions of the contract, that actually says no more or less than we will not be charged for power during such outages.

We have spent considerable time and dollars trying to deal with the Bureau of Reclamation. If we deal with the district office at Huron, they say they have to get the answer from the regional office at Billings. When we get to the regional office in Billings, it has to then go for the Secretary's approval in Washington.

If you take the problem up in Washington we are then referred back to the regional office at Billings and the Billings office will probably take it to the chief of engineers at Denver. It becomes a round robin sort of business, with no one giving us any definite answers, and about the only statements on policy that they give is that, right or wrong, this is the policy.

I would like to point out mismanagement of the Bureau of Reclamation in the design of their system. Actually the Bureau of Reclamation's system is designed with what I would call "valves" that prevent maximum use of this system. For instance, the 230-kilovolt lines connecting Garrison Dam in North Dakota to the main-stem dams

in South Dakota have only one circuit. The rest of the system all the way to Sioux City and all the way to Granite Falls, Minn., is being designed for two 230-kilovolt circuits.

Yet we know the cheapest fuel and actual generation costs are in North Dakota, as shown in the Arthur D. Little, Inc., report called, Report to the Resources Research Committee. A group of power companies and others who had the study made, show that lignite coal can produce power in North Dakota cheaper than the hydropower produced on the Missouri River. Yet the Bureau of Reclamation, rather than make possible the movement of power on their transmission system, have put a valve in it by constructing only a single circuit on its 230-kilovolt Oahe-Bismarck line.

Thus, this cheap lignite power cannot be moved from North Dakota to South Dakota. Yet the same people will design a 230-kilovolt 2-circuit line to go to Granite Falls, Minn., where there is only a small amount of preference customers or to Sioux City, Iowa, where it sells most of the load as dump power to the Iowa Public Service Co.

We feel that a transmission system should be used for the good of the people, but undoubtedly, the Bureau of Reclamation is designing their system so that a minimum of good can go to the people.

Another example of necessary transmission engineering that the Bureau of Reclamation does not consider is tying the reservoirs or the dams on the main stem of the Missouri River to the western division through the Dakotas, over the lignite fields, tying into Yellow Tail Dam project; and, therefore, up to the Fort Peck and Canyon Ferry projects, so that maximum use can be made of hydropower.

In this way if such a transmission line was tied between the East and the West, then during the summertime when Wyoming, Colorado, and Montana need all of their precious water for irrigation we could be using power from the Missouri River to supply them.

In the winter, the western high-capacity plants could then peak the power on the Missouri River. This would help firm up the one-third of the machine capacity that the Bureau of Reclamation now refuses to even sell.

One of the problems that we have in East River, in trying to design our future system, is that we have all of our feeder lines coming out of United States Bureau of Reclamation substations. Therefore, our whole system is designed around the Bureau of Reclamation system.

Now that the Bureau of Reclamation is short of power, it becomes necessary for us to furnish our own supply. We, therefore, would like to have the Bureau of Reclamation guarantee us capacity in their transmission system so that we would only need one transmission system to serve both their hydro and our thermal power.

The Bureau of Reclamation has refused to guarantee us additional capacity because of a policy that assumes no utility responsibility. You can see without this assurance of having capacity in the Bureau system, it is impossible for us to plan and we jeopardize our investment should the Bureau refuse to give us capacity in the future.

East River Electric Power Cooperative's electric requirements are doubling every 7 years. With this type of growth projected into 1970 we will soon need to generate a large part of our requirements, even after the completion of Big Bend and Oahe.

In the Missouri Basin as a whole the authorized hydro facilities will only supply approximately 13 percent of the total requirements. South Dakota has a scarcity of fuel and water within our area; and therefore, it means that only by getting the maximum return on thermal generation can the cooperatives feasibly generate electric power. Two things can be done in the Missouri Basin program to aid South Dakota farmers in getting low-cost power.

First, thermal plants should be used to base-load the hydro facilities of the Federal Government, rather than having us take the peaking at the present time, and secondly, the United States Bureau of Reclamation should make transmission capacity available on a guaranteed basis.

The East River Electric Power Cooperative is already facing a shortage of power by the year of 1958 until such time as Oahe and Big Bend can start producing energy. The cooperatives do not want to go into debt for generation at this time because they recognize that hydro power could be made available to them if the Bureau of Reclamation made maximum use of their facilities.

The Rural Electrification Administration is now in the process of making a loan for a steam generating plant to be built on our system.

I was just over at the REA the day before yesterday, and they went through their studies and found out that because of the policies of the Bureau of Reclamation, and the unknown factors that we have in it, they thought it would be better to give us a loan for diesel generation; and diesel generation, Senators, is nothing more or less than peaking, and that is what hydro power is usually considered. There we are going into the thing that we should not go into.

When we are short of water, we should be using base-load plants, and we should have the right to base-load our plants so that they become feasible to REA, so that they can make loans, so that we can build plants.

The question came up a while ago about our building steam plants. Certainly we would like to, but we cannot, when we have to operate them at a normal load factor, and not be able to use their peaking facilities.

With just a little cooperation from the Bureau of Reclamation and better management of the water, this expenditure could be avoided.

In summary, I should like to make the following recommendations:

I. Abide by the Flood Control Act of 1944.

(*a*) Recognize the following priority of uses of water:

1. Domestic and municipal consumption and pollution control.
2. Irrigation and industrial consumption.
3. Hydroelectric power.
4. Wildlife and recreation.
5. Navigation.

II. Centralize the management of the Missouri River Basin projects under one Federal agency.

III. Build and/or lease thermal generation to provide maximum revenue to the Government and maximum low-cost power to the people.

IV. Assume a utility responsibility.

V. Recognize that the Federal transmission capacity beyond that needed by the Federal Government can benefit the Nation's economy.

VI. Congress should establish the policy of allocating costs of the multipurpose dams recognizing the incremental method of allocation.

Thank you, gentlemen.

Senator MURRAY. Thank you very much, Mr. Hanlon.

Your very exhaustive statement contains a lot of information and facts that are of value.

Mr. Hanlon, I would like to ask you if you consider that it would be helpful if Congress would create a Power Administrator, as they have at the Tennessee Valley and Bonneville Authority?

Mr. HANLON. Senator, as far as I am concerned, and I do not care if it is my business or the business of anyone else, you have to have central Government management. You cannot have 17 Government agencies controlling 1 river. As far as I am concerned, I would say yes, we have to have central Government control of some type.

Senator MURRAY. I noticed your comment about your having to go to Billings, and Billings referring you to Denver, and Denver referring you to Washington, and that it takes a lot of time and trouble to get any understanding of the problems.

It does seem to me that that should have been done in the first place, years ago, that we should have had some kind of authority. But they do not like that word "authority," for some reason or other.

When I filed a bill calling for a Missouri Valley Authority, there was a terrible uproar. The Bureau got in with the Army Corps and consolidated their programs—they did not consolidate them, but they just slapped them together—and called it the Pick-Sloan plan.

That was not a plan at all, it was a mere prospectus. It did not undertake anything.

It seems to me that the great mistake that has been made has been the fact that we did not, in the first place, develop a program that would be effective and efficient with unified administration.

Thank you very much for your statement, Mr. Hanlon.

Mr. HANLON. Mr. Chairman, we hired Wise and Potamkin as attorneys for us, to give us an opinion on what the O'Mahoney-Millikin amendment means, as to industrial uses of water which bears on some of the discussion this morning.

I have copies of that opinion, which are available.

We also have our attorney, Mr. William C. Wise, with us. I would like to have the attorney, Mr. Wise, briefly tell you about this opinion, and we would also like to have it placed into the record.

Senator MURRAY. I believe we will be able to do that.

(The document referred to follows:)

WISE & POTAMKIN,
Washington, D. C., April 22, 1957.

EAST RIVER ELECTRIC POWER COOPERATIVE, INC.,
Madison, S. Dak.

GENTLEMEN: You have requested an opinion on the following question:

"Is the use of water for the generation of electric power and energy in the Missouri River Basin entitled to preference over the use of the water for navigation?"

It is our opinion that the use of water for power generation in the Missouri River Basin is definitely given preference over the use of that water for navigation by the O'Mahoney-Millikin amendment to the Flood Control Act of 1944, and the water is to be used for navigation only to the extent that such use does not conflict with the use of the water for power generation.

DISCUSSION

Section 1 (b) of the Flood Control Act of 1944 (the O'Mahoney-Millikin amendment) provides: "The use for navigation, in connection with the operation and maintenance of such works herein authorized for construction, of waters arising in States lying wholly or partly west of the 98th meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the 98th meridian, of such waters for domestic, municipal, stock water, irrigation, mining or *industrial purposes.*" [Emphasis supplied.]

The word "industrial," in its broad connotation, applies to all forms of economic activity. In its more limited meaning, it applies to "the productive occupations as distinguished from finance and commerce" (the Winston Dictionary, college edition, 1942). Therefore, whether it is used in its broad meaning or in a restrictive sense, it definitely pertains to and includes the business of generating electricity.

In fact, this is so clearly the case that it is difficult to find authoritative rulings or statements on the subject, because it is a point that is taken for granted. Thus it is that we refer to the "electric power industry." No one bothers to cite authorities for this designation because it is a designation that has been consistently used and accepted.

Diligent search has uncovered only one court decision dealing with the precise point of whether the words "industrial purposes" include in their meaning the generation of electric power and energy, and both the decision of the court and the manner in which the court handled the question confirm what has been set forth above. The case of *First Iowa Hydro-Electric Coop.* v. *FPC* (151 F. 2d 20 (C. C. A., D. C.), involved an appeal, by an applicant for a license to construct hydroelectric generating facilities on the Mississippi River adjoining Iowa, from a denial of the application by the Federal Power Commission. The applicant had failed to get a permit from the State of Iowa as required by the Iowa laws. The Federal Power Commission had ruled, among other things, that the applicant had to comply with State laws and, therefore, had to get the Iowa permit. On appeal to the United States Court of Appeals for the District of Columbia, the applicant pointed out that the Iowa statute prohibits the construction of dams for industrial purposes in navigable streams without a permit. The applicant then argued that the construction and operation of a dam for the generation of electricity was not an industrial purpose. The court summarily rejected this contention and held that the generation of electricity did constitute an industrial purpose. The headnotes of the case state: "The Iowa statute prohibiting the construction of a dam in any navigable stream for the diversion of any water therefrom for industrial purposes prohibits the diversion of water for power purposes."

The court did not cite any authority for this ruling. This, we submit, was because the point is so obvious that it was not felt necessary to cite any authority. Also, when the answer to a point is obvious there is rarely any litigation over it, and, therefore, there are few, if any, court decisions on it.

Thus it is that, in our research, the above case was the only one found dealing specifically with the exact question here involved. Wherever else the point was involved, it was merely assumed that the generation of hydroelectric energy is an industrial use.

For example, in an article entitled "Use of Public Water for Industrial Purposes, etc.," appearing in 65 South African Law Journal 14, the author (C. O. Ehrlich) discusses thoroughly the types of industries which should be entitled to use public water and he lists hydro generation as one of those industries. He did not even discuss the question whether the use of water for industrial purpose included its use for power generation. He assumed that. He merely discussed the fact that the use of water for power generation was for the type of industrial use that should be entitled to use public water.

Although there is a scarcity of decisions on the meaning of "industrial," there is an abundance of authority on a related word, namely, "manufacturing." The problem of the interpretation of the word "manufacturing" as it relates to the generation of electric power arises most frequently under incorporation statutes and tax statutes. There are many cases holding that electric-power generation is a form of manufacturing. Before considering those cases, however, it is important to note that the word "industrial" has a broader meaning than the word "manufacturing." In other words, "industrial" includes "manufacturing"

and other forms of business activity as well. "The phrase 'industrial pursuit,' as used in a statute authorizing the formation of corporations for such purpose, is broader and more comprehensive than 'trading' or 'manufacturing.' It includes both and something more" (Fletcher, Cyclopedia of the Law of Private Corporations, vol. 1, sec. 10, p. 38).

In the case of *Kentucky Electric Company* v. *Buechel* (146 Ky. 660, 143 S. W. 58, 60), the court, referring to the generation of electric power, said: "It is merely the changing of energy from one form to another, but these units of energy, after they have been so transformed, are so changed that we think they may properly be termed 'manufactured.' They could certainly not be recognized, and when their form is so changed that they can no longer be recognized, to the average mind they are manufactured into a new product."

In the case of *In re Charles Town Light and Power Company* (183 F. 160, affd. 184 F. 986), it was held that electricity generated for the purpose of furnishing light, heat, and power is a product of "manufacture."

In the case of *Edison United Manufacturing Company* v. *Farmington Electric Light and Power Company* (82 Me. 464, 19 Atlantic 859), in comparing a gas company and an electric company, the court said (p. 860): "Each *manufactures* its power." [Emphasis supplied.]

In the case of *Utah Power and Light Company* v. *Pfost* (286 U. S. 165), the United States Supreme Court held that the process of generating electricity is a manufacturing process.

Other cases holding that the generation of electric power and energy is manufacturing are:

Bates Machine Co. v. *Trenton & N. B. R. Co.* (70 N. J. L. 684, 58A 935)
Chicago M. St. P. & P. R. Co. v. *Custer County* (96 Mont. 566, 32 P. 2d 8)
Duke Power Co. v. *Bell* (156 S. C. 299, 152 S. E. 865)
Columbia Ry. Gas & Electric Co. v. *Query, et al.* (134 S. C. 319, 132 S. E. 611)
Empire Water & Power Co. v. *Cascade Town Co.* (204 F. 123)
Boston & M. R. R. Co. v. *Town of Billerica* (262 Mass. 439, 160 N. S. 419)
Vancedor Inv. Co. v. *Highland Canal & Power Co.* (125 Minn. 20, 145 N. W. 611)
Zamani v. *Otter Tail Power Co.* (182 Minn. 355, 234 N. W. 457)
Hetherington v. *Camp Bird Mining, Leasing & Power Co.* (70 Colo. 531, 202 P. 1087)
State, ex rel Spillman v. *Interstate Power Co.* (118 Neb. 756, 226 N. W. 427)

Since the word "industrial" includes in its meaning the word "manufacturing," and since the law is clear that the word "manufacturing" includes the generation of electric power and energy, it necessarily follows that the word "industrial" also includes the generation of electric power and energy. It also follows, therefore, that the preferential use of waters for industrial purposes as against navigation purposes, as specifically provided in the O'Mahoney-Millikin amendment, includes a preference for the use of the waters for the generation of electric power and energy.

We have thus far herein dealt with the problem solely on the basis of the meaning of words "industrial purposes." Having established that the generation of electric power is an "industrial purpose," the only possible remaining question is on the meaning and applicability of the words "beneficial consumptive use," as used in the O'Mahoney-Millikin amendment. That the use of water for the generation of electric power and energy is a "beneficial" use is too obvious to require any discussion. We might merely note that perhaps the most recent recognition of this fact on the floor of the Senate was during the consideration by the Senate of the River and Harbor and Flood Control Act of 1957, when Senator Watkins observed "* * * the use of water for power has long been recognized as a beneficial use of water" (p. 4121, Congressional Record, Thursday, Mar. 28, 1957, vol. 103, No. 54).

Actually, this statement of Senator Watkins followed his submission of a number of statutes, including that part of the Flood Control Act of 1944 which contains section 1 (b). It can, therefore, be properly assumed that Senator Watkins was referring to the type of beneficial use referred to in section 1 (b), and that means a beneficial consumptive use. However, it is not necessary to rely upon this statement for that purpose. In the first place, the storage of water for hydroelectric generation leads to the evaporation—the consumption—of water, and there is no doubt that it is, therefore, a consumptive use. For example, in testimony by Harry W. Bashore, then Commissioner of Reclamation, on April 18,

1945, before a subcommittee of the Senate Committee on Commerce, during hearings on S. 555, 79th Congress, 1st session (p. 1730 of hearings), we find:

"I might point out in that connection that these reservoirs introduce an element of consumptive use in the waters of the streams, expose the surface to evaporation, and consume quite a bit of water."

Also, in the hearings on the Water Rights Settlement Act (S. 863), before a subcommittee of the Senate Committee on Interior and Insular Affairs, 84th Congress, 2d session, March 20, 1956, at page 89, we find the following discussion (the witness, Mr. Grimes, was chief engineer and executive officer, South Dakota Water Resources Commission):

"Mr. GRIMES. That is correct. Power being referred to as a nonconsumptive use, as far as the lower people are concerned, it is questionable. It is a consumptive use.

"Senator WATKINS. It certainly is a consumptive use.

"Senator BARRETT. It is a consumptive use because of evaporation that occurs in the dam storage, is it not?

"Mr. GRIMES. That is a factor.

"Senator BARRETT. And it is a considerable factor in a good many cases, is it not, Mr. Grimes?

"Mr. GRIMES. Yes; the evaporation rate; whenever you increase the surface area, of course, you increase the evaporation rate.

"Senator BARRETT. It depends on the area where it is located, but in some cases it is a considerable factor and amounts to a distinct consumptive use; is that not right?

"Mr. GRIMES. That is a consumptive use, that evaporation. It is lost to use in any other area."

There is no doubt, therefore, that the storage of water and its subsequent use for the hydroelectric generation is a "beneficial consumptive use." Furthermore, the "consumptive use" part of the requirement is not the controlling factor in determining which purpose has preference. Any use of the water for the purposes mentioned, whether consumptive or nonconsumptive, has preference over the use for navigation. The word "consumptive" is used only descriptively, and not as a word of limitation.

The preferential uses set forth in section 1 (b) have always been referred to as "beneficial consumptive" uses, because normally they are "consumptive" uses. It cannot be argued, however, that the use must be consumptive to have priority. It is the nature of the use that entitles it to priority and not the fact that the use consumes or does not consume water. For example, if in this age of scientific miracles an irrigation process was developed whereby the water diverted from a stream for irrigation purposes was returned to the stream, it certainly could not be argued that the use for irrigation was no longer a preferred use because it did not consume the water. Irrigation is a use preferred over navigation because it is considered a more important use of the water than navigation and not because it is a consumptive use. And irrigation would retain this preference over navigation even if by a new process the irrigation use did not consume the water.

In other words, the word "consumptive" as used in 1 (b) is meant to describe irrigation and the other uses enumerated and not to limit the preference rights of those uses. It is exactly as though 1 (b) had read: "The use of the water for irrigation (etc.) which is a beneficial consumptive use, is entitled to preference over the use of the water for navigation." Section 1 (b) must further be interpreted as meaning that these named uses have preference over the use for navigation even though, or despite the fact that, they are consumptive uses—and, certainly, if in any instance those uses should not be consumptive, they would, a fortiori, be entitled to preference.

In the case of the use of water for power generation, only when there is storage is there any necessity to consider which use has preference as between power generation and navigation. And when there is storage for generation, the use is consumptive. Where the generating plant is only a flow of the river type of plant, without storage, there is no consumptive use, but at the same time there is no possibility of conflict because there is no interference with the natural flow of the stream. Thus, the question with respect to power generation becomes merely academic: The possibility of conflict, and the necessity to determine preferences between the two uses, exists only when there is storage; and when there is storage we have a consumptive use.

However, even if it were possible to have a situation where there is conflict between the use of the water for generation and the use of the water for navigation, without there being any storage of the water for generation, the use for generation still would be entitled to preference, just as in a simiar hypothetical case the use of the water for irrigation would be entitled to preference even though it were not a consumptive use for irrigation. Obviously, where Congress says that one type of use is to have preference over another type of use even when the preferential use consumes part of the water, certainly Congress must intend that the preferential use of the water be recognized as such when it does not consume any of the water.

The foregoing discussion has been solely on the basis of the meaning of section 1 (b) of the Flood Control Act of 1944. To complete the analysis, it is necessary to consider the preamble of the act, which sets forth the intent of the Congress. The applicable part of the preamble reads:

"* * * it is hereby declared to be the policy of the Congress * * * to limit the authorization and construction of navigation works to those in which a substantial benefit to navigation will be realized therefrom *and which can be operated consistently with appropriate and economic use of the waters of such rivers by other users.*" [Emphasis supplied.]

The language of section 1 (b) is clear and unambiguous and needs no interpretive help from the preamble. However, if there had been any ambiguity or uncertainty, the preamble would remove it. The preamble clearly shows that navigation is to be served only to the extent that the use for navigation is "consistent with appropriate and economic use of the waters of such rivers by other users." Obviously, to the extent that use of the water for navigation is not consistent with the use of the water for power generation, the use for power generation must prevail.

CONCLUSION

It is, therefore, our definite opinion that the use of water for power generation is an industrial use entitled to preference under section 1 (b) of the Flood Control Act of 1944 (O'Mahoney-Millikin amendment) and that the water is to be used for navigation only to the extent that it does not conflict with the use of the water for power generation.

Very truly yours,

WISE & POTAMKIN,
By LAWRENCE POTAMKIN.

Senator CASE. Mr. Chairman, bearing in mind what you have said about foregoing argumentative items, I would like to ask a couple of direct questions.

Senator MURRAY. All right.

Senator CASE. Mr. Hanlon, do you have a shortage of power at East River at the present time?

Mr. HANLON. No, Senator.

Senator CASE. When do you anticipate you will have a shortage?

Mr. HANLON. In 1958.

Senator CASE. Would that shortage be part of this 116 megawatts deficiency indicated by Mr. Aandahl?

Mr. HANLON. No, it is not. We are considering that they are going to have that. With that 116,000 kilowatts of deficiency, we are undoubtedly running into a power shortage now. We do not know exactly. The Bureau of Reclamation has not fulfilled its obligations to some of the preference customers in Iowa, and there are still some waiting in South Dakota and North Dakota.

Should they make all the commitments that they have under contract for 1958, the 116,000 is beyond what I have talked about.

Senator CASE. Have any of the power producers in the area offered you any additional power, or is there any additional generating power in the area?

Mr. HANLON. The Northern States Power Co., Granite Falls, Minn., would put power into the grid system that we could take off their system, yes. It would average about 12.62 mills. We can build generation, of course, cheaper than we can buy that type of power.

Senator CASE. Have you made any estimate as to how long that shortage would continue before the power from the Oahe Dam comes in?

Mr. HANLON. Oahe, if it is on schedule in 1962, and if it is allocated again as firm power, and I think probably the Bureau of Reclamation will be a little reluctant to sell more firm power from the experience they are having right now, and possibly have to go to peaking capacity, selling peaking capacity, it is pretty hard for us to know if Oahe will be giving us any power or not.

We would like to know that answer.

Senator CASE. Are you paying over 12 mills for power that you get now, over and beyond what the Bureau gives you?

Mr. HANLON. We are buying all Bureau power at the present time.

Senator CASE. You are buying all Bureau power?

Mr. HANLON. At the present time, yes.

Senator CASE. Have you bought Northern States power on occasion?

Mr. HANLON. Yes. When we first started our system, and there was a shortage of power in South Dakota, we did.

Senator CASE. Do you remember what that averaged you in cost?

Mr. HANLON. We were taking a 30,000-kilowatt load, and we got the power down to around 9 or 10 mills.

Senator CASE. Would it be possible for you to get that power again at that rate?

Mr. HANLON. They would have the same rate, Senator, but because the demand would be less, we would be in a higher rate bracket. It is actually the same rate as they gave us then. At that time we were using 35,000 kilowatts from them. At this time we will only be short from five to sixteen thousand, depending on when Oahe will come in.

Senator CASE. So there is a lesser load than your total at that time, and the rate would be higher?

Mr. HANLON. That is right.

Senator CASE. That is all, Mr. Chairman.

Senator MURRAY. Thank you,

Senator HRUSKA. Mr. Chairman, the witness who would normally, by this schedule, follow Mr. Hanlon is Mr. Harry Trustin, of Omaha. He is supposed to catch a plane at 5:30.

I am wondering, Mr. Hanlon, if you would mind your witness deferring until Mr. Trustin gave his testimony.

Mr. HANLON. I assume that would be all right.

Senator HRUSKA. That is, too, if it is agreeable to the Chairman.

It would be a courtesy that I would appreciate very much, Mr. Chairman.

Senator MURRAY. Very well.

STATEMENT OF HARRY TRUSTIN, APPEARING ON BEHALF OF THE OMAHA CHAMBER OF COMMERCE, OMAHA, NEBR.

Mr. TRUSTIN. I am Harry Trustin, and I represent the chamber of commerce in the city of Omaha.

I appreciate your courtesy of allowing me to read this statement, which will be, certainly, short compared to some of the other statements.

Senator HRUSKA. I would like to say, Mr. Chairman, that Mr. Trustin is no stranger to this committee or to congressional committees. He is a man who has served for a long time on the City Commission of Omaha. He was in charge of the public works department there at one time. He has lived for many years with the problems of the Missouri River. He is a very valued and respected citizen in our city.

Senator CASE. Mr. Chairman, I would like to say that it has been my privilege to know Mr. Trustin over a period of years, and I have found him to be a very constructive and helpful witness.

Mr. TRUSTIN. Thank you, gentlemen.

In the fall of 1943, I first came to Washington to urge the authorization of the Corps of Engineers report, which became known as the Pick plan for the Missouri River Basin. I was city engineer for the city of Omaha at that time.

In the spring of that year, side by side with Col. Lewis Pick, we fought the 200,000 second-foot flood on the Missouri on a rampage which destroyed farms and inundated industrial and residential areas of Omaha. We also watched 8 feet of water cover our municipal airport. The damage ran in excess of 70 millions of dollars.

For 11 days and nights we watched the river rise to then unprecedented heights. We matched the rise with dikes foot by foot, with manpower and all equipment and material in the area, but at the crest of the flood, the locally built dikes gave way. This was not the first flood with great destruction.

After hearings, which are on record, the O'Mahoney-Millikin amendment was incorporated into the Flood Control Act, the work started.

From that time, 1944 to 1957, this work has continued until now. Dam structures are closed, and the flooding of the Missouri is a thing of the past to Kansas City, though the works are not entirely completed.

From that time, 1944 to 1957, the people in this basin have been appearing here in Washington to testify that the works are being completed as per plans and specifications; and this has been a solid front. The group under the leadership of the Mississippi Valley Association has acted as one man "all for one and one for all" for the Pick-Sloan plan.

Had not this work continued from 1944 to 1952, I cannot guess what would have happened to us when the river in the Spring of 1952 rose again to the greatest peak recorded—400,000 second feet. But, thanks to the Pick-Sloan plan, our dikes constructed at Omaha and the around-the-clock work of about 25,000 people from the Omaha and Council Bluffs area, we were able to keep the river in its channel at Omaha.

A project so large as the Pick-Sloan plan would naturally attract some who would like to take control of some part or all of the project. We have had the Friends of the Authority Idea, which would place this great project under the power of a few.

This has happened more than once, and they have been turned back by the solid front of the people of the entire basin, represented by these men who are here today again—as they have been appearing year after year—at great cost of time and money, to see that the coordinating committee on the main stem reservoir control—made up of State engineers of the basin States; namely Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas, and Missouri—and the governmental agencies—consisting of Department of the Interior, Corps of Engineers, Public Health Service, Federal Power Commission, Department of Commmerce, Department of Labor, Department of Agriculture—continue to direct the operation of the main stem Missouri River Dams according to the law as authorized by the Congress.

Certainly it is possible that after the plan is complete and operating, changes may be necessary to reap 100 percent results in the authorized phases of the plan; and when that time comes, the people of the basin represented by the Inter-Agency Basin Committee—which includes the governors of the basin States—will applaud these actions.

I have faith that no one will "change horses in the middle of the stream." I am sure that the data which is the history of the river, the flood and the drought periods, the average water by acre-feet, the irrigation by acres, the kilowatts of power, the wildlife and the water necessary for domestic and industrial use, navigation and, most important, the storage in the dams necessary for flood control, will continue to guide the Corps of Engineers in completion and operation of the project.

The plans were built only after research and engineering expertly studied by the greatest engineering minds, both military and civilian, under the leadership of Lt. Gen. Lewis Pick, deceased, and Glen Sloan of the Bureau of Reclamation.

Those of you who know the Pick-Sloan plan remember that Glen Sloan of the Reclamation Bureau, and irrigation interests, wanted the water which fell in areas in the basin west of the 98th meridian for domestic, municipal, stock water, irrigation, mining or industrial purpose; and this concept was agreed to by all.

Why would anyone cause dissension in the basin over anything at this time when the project is only one-half completed? The men and agencies who developed this Missouri Basin program were in agreement that the fundamental purpose was to stop destructive floods and store up every possible gallon of water for multiple-purpose use by the people. If selfish groups are permitted to change this concept, the whole program will be endangered.

I have faith that the Congress will see the work, costing the taxpayers billions of dollars, completed according to plan and operated according to plan set up for that purpose.

Thank you, Mr. Chairman, and members of the committee.

Senator MURRAY. Thank you very much for your statement.

Mr. TRUSTIN. Thank you. I appreciate your allowing me to give this statement.

Senator MURRAY. Mr. Hanlon, you have an attorney that wishes to make an analysis. Could we hold that aside until we hear from these other witnesses who wish to get away?

Mr. HANLON. That will be fine.

Sentor MURRAY. Very well.

The next witness will be Mr. Robert B. Hipple, of Pierre, S. Dak.

STATEMENT OF ROBERT B. HIPPLE, PUBLISHER, DAILY CAPITAL JOURNAL, PIERRE, S. DAK.

Mr. HIPPLE. My name is Robert B. Hipple. I live at Pierre, S. Dak., where I am publisher of the Daily Capital Journal. I am a member of the Missouri River State Committee from South Dakota of the Mississippi Valley Association, and one of the nine men on the executive committee of that association.

My apperance is at the request of the directors of the Pierre Chamber of Commerce, and at the request of the directors of the Mississippi Valley Association from the Missouri River Division, who met in Omaha, Nebr., on April 26, 1957.

The basis for my statement will be found in two passages from the hearings conducted by a subcommittee of the Senate Committee on Commerce of the 78th Congress on House Resolution 4485, which subsequently became the Flood Control Act of 1944.

First of these is an observation made by then Representative, now Senator, Francis Case of South Dakota, during the course of a discussion with Senator Millikin of Colorado, regarding appropriate language to define congressional policy with respect to use of Missouri River water.

The passage will be found at pages 600 of those hearings, with Congressman Case observing:

> Personally, I feel that our people at home do not quite understand what these declarations of policy are.

There is no question whatever in my mind that that feeling by Mr. Case was amply justified then; and, for my own part, I entertain the same feeling today.

The concurrent resolutions adopted by the South Dakota Legislature last February recites that—

> There seems some reasonable doubt that the Missouri Basin's water is being managed in such a way as to provide the optimum benefit to the people of south Dakota.

If I may paraphrase the observation that Mr. Case made 13 years ago, I have the feeling—and I suspect that Senator Case holds the same feeling—that the members of the South Dakota Legislature had very little knowledge about the manner of management of Missouri Basin at the time they adopted the resolution.

To phrase it more bluntly, speaking from a long personal experience with South Dakota Legislature and personal acquaintance with a great many legislators, I am sure that most of the men who voted in favor of that resolution did so merely as a matter of form and without reflecting upon the burden they were asking this committee to assume, or upon witnesses, who might be asked to appear.

As a result, even though the legislature did say that there seemed to be some reasonable doubt, I am here today claiming to have con-

siderable personal knowledge about the facts, and saying that there is no reason whatever to doubt that South Dakotans are benefiting tremendously from the manner of management of Missouri River water.

The second reference to the 1944 hearings which I consider pertinent to the subject matter of this inquiry, and which establishes the position I consider to be correct, will be found on page 476 and 477.

Former Governor M. Q. Sharpe, of South Dakota, and Senator Millikin, both highly competent attorneys and both fully informed on water law and on the importance of water to the people of their States, were engaged in a discussion of the constitutional position of the use of Missouri River water and of the proper policy that the Congress should adopt toward the use of that water. Both of those men recognized that electric power was an incidental benefit, and not a consumptive use, and as a result power occurred only incidentally in their discussion. They were seeking to establish the relative position of users of water for irrigation purposes, and users of water for navigation purposes.

The passage I cite opens with a question by Senator Millikin:

> Now, Governor, keeping in mind that under the Constitution the Government could, if it would, make any drafts on irrigation water that it might consider to be necessary to maintain navigation levels, suppose that you were the head of the Bureau of Reclamation. How could you plan a future program in the face of a threat that something of that kind might be done?

Governor Sharpe answered:

> The answer to that is right in the Constitution. This particular Congress that is now going to act cannot vest any rights in irrigation even if it wants to; and there isn't any reason why irrigation cannot take a chance on its development along with navigation or flood control or power development or the other interests. They have all got to be willing to trust the good judgment of this Congress and future Congresses. Each Congress has this control and you cannot dispense with it. Under the Federal Constitution it is simply there.
>
> Senator MILLIKIN. In other words, the Congress has the power to establish the policy, and you say that it should be so?
>
> Governor SHARPE. That is right.
>
> Senator MILLIKIN. We are in complete agreement on that.

Again, if I may bring the situation up to date, I am convinced that the great majority of the people of South Dakota, and of the people of the Missouri Basin generally, accept the conclusions reached by Governor Sharpe and Senator Millikin. I know that I certainly do.

Now what happened as a result of the tremendous and patient effort made by such men as Governor Sharpe, Congressman Case, Senator Millikin, Senator O'Mahoney, of Wyoming, and Senator Overton, of Louisiana, to arrive at a statement of policy that would be acceptable to the people of the Nation, and to the people of the basin, and to the people of South Dakota?

That statement of policy was reached in the language commonly referred to as the Millikin-O'Mahoney amendment to the Flood Control Act of 1944.

That statement unblocked the road to adoption of the act. It unblocked the road to construction of the required works. That construction has gone forward for 11 years.

A measure of control was achieved in 1954 and the matter of management of a coordinated system came into practice under the

general supervision of an operating policy committee on which 7 Federal agencies and 7 States are represented. That committee has functioned through three operating seasons and met at Omaha on April 25 of this year to review the operating program for the water year of 1957.

I hope that this committee already has a summary of those operations of 1954, 1955, and 1956 in the record. If it does not, I recommend that it request the operating control center at Omaha to supply such a summary. The summary will disclose that, despite the incomplete status of such important control structures as Oahe and other large reservoirs, substantial flood-control capacity came into existence, large quantities of electrical energy were generated, and that, even though it was necessary to curtail the length of navigation seasons, and the seasons were in fact curtailed, it was possible to maintain channel depths to a sustained level, and that this in fact brought commercial navigation in to being as an accomplished fact on the lower Missouri River after a lapse of several decades.

There is one more thought which I recommend to the attention of this committee. This is the proposition that the people of South Dakota are not merely entitled to a share in hydroelectric energy as the total measure of their benefit from the Missouri Basin construction program, or the use of the regulated floodwaters of the Missouri River; we have a large and real need for protection from flood damage, and we will not achieve that benefit until the Oahe Dam is completed and the Oahe Reservoir comes into operation.

We have a large and real need for irrigation in our State; and again we cannot achieve that benefit until the necessary economic and engineering studies are completed for irrigation based on the use of water to be impounded in the Oahe Reservoir.

We have a large and real need for the benefits of navigation in our State; and again we cannot achieve that benefit until downstream works are completed or until an adequate and reliable water supply is in storage in the Oahe Reservoir.

As I see the situation, South Dakotans should and must have their proper share of all potential benefits; but they must share those benefits with all of the people of the Missouri River Basin and with the Nation at large.

The full potential benefits cannot be realized until the entire construction program is complete; until all works are in operation; and an adequate water supply is in storage in all reservoirs.

I am far more disturbed by the delay in completion of irrigation studies in South Dakota than I am by any argument over the relative position of hydroelectric energy.

I am more concerned about the relatively slow progress in completion of the navigation channel to Sioux City than I am about the amount of water that has been released to sustain navigation below Kansas City.

Finally, I am convinced that studies of the economic importance of navigation above Sioux City should be brought up to date by the Corps of Engineers, and that planning for the authorized Big Bend Dam should include planning for locks as well as planning for the hydroelectric installations in connection with that dam.

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We need hydroelectric power in the Missouri Basin—all we can get from the available water—but we must recognize that we must not ask this Congress or any other Congress to alter the basic premises upon which the Missouri Basin program was authorized and which dictated the engineering designs. We must go ahead and build the entire program as fast as possible and ask the good Lord to send us the rainfall upon which the successful operation of that program depends.

If you will indulge me, Mr. Chairman, I would like to comment on some of the matters that have appeared since I prepared my testimony.

Senator MURRAY. That will be very satisfactory.

Mr. HIPPLE. In the resolution they said that there seemed to be some reasonable doubt that the Missouri River Basin water is being managed in such a way as to provide the optimum benefit to the people of South Dakota. I agree with the gentleman from the State of Kansas that State legislatures are prone to throw burdens on congressional committees, and witnesses, which the legislatures themselves might very well take care of.

I also think that the suggestion that was made here by the South Dakota water engineer, that these matters might very well be taken care of out in the basin itself, rather than being submitted to the Congress, is a suggestion that this committee might well follow.

Before going to the next point, I would like to interject one more quotation from the hearings of the 1944 Committee on Commerce, which will be found on page 477, in which Governor Sharpe replied, in answer to a question from Senator Millikin:

> The fair thing to do for irrigation, navigation, and flood control is to put in this bill that there are no rights going to vest under construction or use purposes, and that is a warning to all of them in the future, that they are not going to set up vested rights, even if they do build docks and wharves in Kansas City, or an irrigation plant in North Dakota, that this is your warning that the Nation reserves its complete constitutional control over this, free from such claims. And if the law tells them that, then it is up to them to devise methods of planning and operation so that they will be safe if some Congress, as they say, might go haywire in the future and give it all to irrigation or all to navigation.
>
> I do not apprehend that they will ever do it, but there is their chance to safeguard it, if the law warns them that they are not going to vest rights in anybody.

That is exactly, Senator, what the Congress did. The Congress adopted a statement of policy. The Congress did not vest in anybody any rights in the waters of the Missouri River. That statement of policy was reached in the language commonly referred to as the O'Mahoney-Millikin amendment to the Flood Control Act of 1944, which has been repeatedly referred to today.

Now, Mr. Chairman, as I understand, the engineers have already supplied you with information, but I would like to suggest that it would be very illuminating and helpful to your committee if you would ask the operating control center at Omaha to supply you with a summary of the operating reports that that center issues every month to the newspapers in the Missouri Basin, and which I receive every month as the editor of my newspaper.

To summarize simply the report for March, that report illustrates the manner of management that is actually going on out there.

The Fort Peck Reservoir, during the month of March, gained in elevation 2 feet. It gained in storage, in water actually under control, 230,000 acre-feet.

In the Garrison Reservoir, they gained 3.2 feet in elevation. They gained 470,000 acre-feet in storage.

In the Fort Randall Reservoir, they gained 10 feet in elevation, and 10 feet is a lot of power in that pool. They gained 661,000 acre-feet in storage.

At the small Gavins Point Reservoir, they gained a half-foot in elevation, and they gained 15,000 acre-feet in storage.

Summarizing the total system operation, they gained, or they actually produced, a total of 154 million kilowatt-hours of electricity in that system at the same time that they were gaining water in every reservoir.

The total power generation at Fort Peck during the month was 47 million kilowatt-hours, with water releases amounting to 450,000 acre-feet.

At Garrison, they put out 701,000 acre-feet, and the output was 61 million kilowatt-hours.

At Fort Randall, they released 341,000 acre-feet and generated 27 million kilowatt-hours.

At Gavins Point, they released 483,000 acre-feet, and they generated 19 million kilowatt-hours.

Every last gallon of that water went through power turbines. There was not any of it that was not used directly to generate power.

There is one more thought which I recommend to the attention of this committee. This is the proposition that the people of South Dakota are not merely entitled to a share in hydroelectric energy as a total measure of their benefit from the Missouri Basin construction program, or the use of the regulated floodwaters of the Missouri River.

We have a large and a real need, Senator Hruska, and everybody else, for protection from flood damage. I speak as one who stood up to my belt in mud when cleaning out from a flood.

I wish Senator Chavez was here, because he came out and saw it in 1952, at the time we were shoveling out the mud from my printing plant.

We will not achieve that benefit, and do not let anybody tell you that we will, until the Oahe Dam is completed and the Oahe Reservoir comes into operation.

We have a large and real need for irrigation in our State. Again, we cannot achieve that benefit until the necessary economic and engineering studies are completed for irrigation, based on the use of water to be impounded in the Oahe Reservoir.

We have a large and real need for the benefits of navigation in our State; and, again, we cannot achieve that benefit until downstream works are completed, or until an adequate and reliable water supply is in storage in the Oahe Reservoir.

I may say here that I am in complete sympathy with Senator Case when he says that our people out there in the State of South Dakota have to have some benefits to compensate us for the damage that we have sustained.

The only difference in our position is this: That I say that it is not—and frankly I think that he will join with me in saying it—it is not only hydroelectric power, but all the other benefits that can be derived from that construction.

As I see the situation, South Dakotans should and must have their proper share of all potential benefits; but they must share those benefits with all of the people of the Missouri River Basin, and with the Nation at large.

The full potential benefits cannot be realized until the entire construction program is complete, until all works are in operation, and an adequate water supply is in storage in all reservoirs.

I am far more disturbed by the delay in completion of irrigation studies in South Dakota than I am by any argument over the relative position of hydroelectric energy. I am more concerned about the relatively slow progress in completion of the navigation channel to Sioux City than I am about the amount of water that has been released to sustain navigation below Kansas City.

Finally, I am convinced that studies of the economic importance of navigation above Sioux City should be brought up to date by the Corps of Engineers, and that planning for the authorized Big Bend Dam should include planning for locks, as well as planning for the hydroelectric installations in connection with that dam.

We need hydroelectric power in the Missouri Basin, all we can get from the available water, but we must recognize that we must not ask this Congress, or any other Congress, to alter the basic premises upon which the Missouri Basin program was authorized, and which dictated the engineering designs.

We must go ahead and build the entire program as fast as possible, and ask the good Lord to send us the rainfall upon which the successful operation of that program depends.

Senator CASE. Mr. Chairman, I think Mr. Hipple has made a very good statement. It illustrates that really what we need to do is to recognize that it is a multiple-purpose program.

You have to view the problem as a whole. I think some of our problems do grow out of the fact that the work is just in the middle of the program, you might say. A lot of these questions will be answered when the storage is completed, and when we have had normal rainfall, with normal runoff, and can get normal operation from the dams.

We have not had that up to this time.

Mr. HIPPLE. That is absolutely correct.

I wish Senator Anderson was here to ask me what do we want Congress to do in South Dakota.

Senator CASE. I will ask you that question.

Mr. HIPPLE. What we want Congress to do is to build this program to completion as fast as possible, and to complete the planning studies that we need drastically out there, if we are to have irrigation which we consider as our part of the program.

Senator MURRAY. What is delaying that now?

Mr. HIPPLE. Senator, Mr. Hanlon, who was here before, was quarreling with the Bureau of Reclamation on one point. There are a lot of us out there who feel that the Bureau of Reclamation has been dragging their feet.

On the other hand, the answer that they always come back with is this: We do not have the money to complete the studies.

The fact is this, that we need irrigation out there in South Dakota. But, as of today, we do not know what lands can be irrigated, how much it is going to cost, or where it is going to be. There is a certain amount of engineering work that has to be done before they will supply us with those answers.

Senator HRUSKA. Mr. Hipple, I read at page 4 of your statement:

South Dakotans should and must have their proper share of all potential benefits.

I might observe, first of all, that I am in full sympathy with that. I think you should have your proper share of benefits, and a lot of consideration, because, as Senator Case has so often said, you are furnishing the parking space for all that water which means so much to the people who live downstream.

The question I would like to ask you is whether or not, in your judgment, the vesting of all these powers and all these responsibilities which are now exercised by this Missouri Basin Interagency Committee, and its subcommittees, whether the vesting of those powers and responsibilities in a single Federal administrator or Federal board would enable you or assure you South Dakotans of getting and having the proper share of all these potential benefits on a more certain basis than we can look forward to under the present arrangement?

Mr. HIPPLE. Senator, like Mr. Trustin, who has been coming here since 1943, I have been coming here since 1944. My position has always been this: I would rather trust the Congress to establish a policy and to direct the subordinate agencies to carry that policy out.

I would much prefer that to having the Congress assign its responsibilities to some other agencies over which, as a practical matter, it did not succeed in exercising too much control.

As to whether or not South Dakota would get its benefits, I think we will get them. I still have confidence in the Congress, and I think we will get our benefits.

I think we would also get them if there was a single agency. For my own choice, however, I would rather trust the Congress.

Senator MURRAY. Does that conclude your testimony?

Mr. HIPPLE. Yes, sir.

Senator MURRAY. Thank you very much, sir.

The next witness will be Mr. J. R. Smith, of Omaha, Nebr.

STATEMENT OF JAMES R. SMITH, VICE PRESIDENT, MISSISSIPPI VALLEY ASSOCIATION, AND MANAGER, MISSOURI RIVER DIVISION

Mr. SMITH. Mr. Chairman, before I make my presentation, may I ask your permission to file a couple of statements from gentlemen who are not here?

I have a statement from the Chamber of Commerce of Metropolitan St. Louis, from Mr. L. Hoffman. He would like to have it filed.

Senator MURRAY. It will be filed with the record.

(The statement referred to follows:)

STATEMENT BY L. HOFFMAN OF THE CHAMBER OF COMMERCE OF METROPOLITAN ST. LOUIS

Droughts in Missouri, since 1952 and in neighboring States for a longer period, have made St. Louis residents and business, industrial and traffic executives more keenly aware of the importance of water.

Health officials have been kind in their praise for the effort on the part of industries and municipalities in cleaning up and neutralizing the waste returned to our streams and rivers. Our chamber constantly urges these same concerns to move more rapidly in the direction of sanitation than the requirements of the laws.

Minimum flows on the Missouri and Mississippi Rivers have confronted the St. Louis area with navigation and water supply problems. Special appeals were issued last fall and the response was quick to alleviate navigational problems.

Local water supply companies are geared to remove the last drop of water from the Missouri and Mississippi Rivers. That is, they take the water from the bottom of the river and when water is there, they will take it.

St. Louis has not been short on water for domestic consumption. We could accommodate an influx of population and industrial users many times our current population.

During minimum flows, however, the problem of purification is multiplied. With this, we have been confronted. One residue suspected of being petroleum in nature, but still unidentified, has given the St. Louis County Water Co. and the St. Louis water division a great deal of trouble. Its source also remains unidentified but sanitary engineers are bent upon discovering its source this summer by checking various points on the Missouri River.

Our appeal is to prevent minimum flows less than we have experienced in recent years on the Missouri River.

From our observations and experience, in view of rainfall and snowfall conditions, laws on allocation of water and the administration of directives have been complied with in a fair and legal manner.

Mr. SMITH. I also have a statement from the South Sioux City (Nebr.) Chamber of Commerce, and the City Council of South Sioux City, Nebr., which I would like to have inserted into the record.

Senator MURRAY. Very well. That may be inserted into the record, too.

(The statement referred to follows:)

STATEMENT OF THE SOUTH SIOUX CITY (NEBR.) CHAMBER OF COMMERCE AND THE CITY COUNCIL OF SOUTH SIOUX CITY, NEBR.

In northeast Nebraska more and more farmers are expanding their operation either by buying or leasing additional land which is gradually decreasing the number of tenant farmers and other farm laborers. The result of this continuous shift of farm population to the towns and cities is a serious shortage of jobs which can only be relieved by additional industry.

In this particular area we are at the head of river navigation on the Missouri River which everyone recognizes as one of the finest river valleys in the United States. We here have all watched the progress of the Army Engineers on the river, the gradual push upstream toward us of navigation and the reservoir system above us. We have seen the results that have been accomplished below us in handling grain, steel, fertilizer, sugar, feeds and many other products that must move into and out of our area. This movement by water makes us along the river natural locations for new industry which we sorely need to take care of our people.

Through the wisdom of the Army Engineers and the farsightedness of Congress we have seen this river changed from an unruly raging beast (that nearly took our city in 1952) to a tame useful domestic animal that can now work for us if we continue this project which now has only a relatively few miles to go to completion of the navigation aspects of the overall plan.

We note here with considerable alarm that some of the upstream interests are now recommending that upstream water be retained in the reservoirs and be utilized primarily for power. These sentiments of course have their merits but we feel this river can work for the entire valley if our neighbors above will be patient and realize that we should share and share alike in the benefits of the river. In that connection we should all remember that when this project was set up originally it was a two purpose plan—the storage of water and control plus the navigation plan. Both are important.

In other words we feel it would be foolish to build a fine house and then not put on the front steps or the door; likewise it would be foolish to have worked this project for hundreds of miles upstream from us and hundreds of miles below us and then stop right at the front door.

Respectfully submitted.

MARION LOCKWOOD,
President, Chamber of Commerce.
FRED KLASEY,
Mayor, South Sioux City, Nebr.

Mr. SMITH. My name is James R. Smith, and I am vice president of the Mississippi Valley Association and manager of the Missouri River division. The Mississippi Valley Association is vitally interested in maintaining the integrity of the comprehensive Missouri Basin development program as authorized in the Flood Control Act of 1944.

We have urged the completion of the comprehensive development program in the Missouri River Basin since its inception and the association took an active part and appeared before the Public Works Committees of Congress during the time that the Flood Control Act of 1944 was being considered.

I. PHILOSOPHY OF THE MISSISSIPPI VALLEY ASSOCIATION

The basic philosophy of the association is multiple-purpose development of America's river basins to the end that all needs of citizens are met to the fullest degree compatible with the availability of water.

Very frankly, the association is distressed at the need for appearing at this hearing. We consider hearings on the allocation of Missouri River water to be premature at this time. We urge moderation.

Because the Missouri Basin program is far from complete, and because we have had three relatively low water years, we believe that all citizens should share equitably, not only in the benefits available from partial operation of the incomplete reservoir system but also the disadvantages caused by temporary water shortages. When the program is complete there will be ample water and a high degree of compatibility among various water users.

Meanwhile, river water users must accept less than their full ultimate benefits as determined by the Reservoir Coordinating Committee composed of representatives of the 7 basin States, and the 7 interested Federal agencies.

However, when it became apparent that the allocation of Missouri River water would be discussed at this time, it became equally apparent that all sides of the story should be told. That is why the association is appearing today.

II. BACKGROUND OF FLOOD CONTROL ACT OF 1944

The comprehensive Missouri Basin program, popularly known as the Pick-Sloan plan, was authorized by Congress in the Flood Control Act of 1944, approved December 22, 1944. After extensive hearings, the so-called O'Mahoney-Millikin amendment was incorporated into the flood control act. This committee is familiar with that amendment, so I will not quote it.

A review of those hearings indicates that the subject of possible conflicting water uses was thoroughly aired, with upstream reclamation interests and downstream navigation interests adequately represented. The subject of hydroelectric power was mentioned infrequently and only incidentally.

The primary concern of the upstream States was to prevent the jeopardy of future irrigation when such water might also be needed for navigation. The problem was ultimately settled by the adoption of the O'Mahoney-Millikin amendment.

Based upon the amendment as finally incorporated into the law, upstream and downstream citizens united to support and promote the entire comprehensive basin plan. That unity of purpose has been outstanding and has resulted in relatively rapid construction of most phases of the comprehensive program.

III. PRESENT STATUS OF THE RESERVOIR SYSTEM

The overall program is now about 55 percent complete. Four main-stem projects are now in operation. Only Oahe, the largest reservoir, and Big Bend Dam remain to be closed. Partial benefits from the main-stem reservoirs are already accruing, including flood control for river cities and most agricultural land on the flood plain.

The present installed power capacity is 745,000 kilowatts, with an ultimate installed capacity of 1,780,000 kilowatts projected.

Power production has increased from 610 million kilowatts per hour to 2,280 million kilowatts per hour in the past 4 years.

Concurrently, urgent downstream water-supply and sanitation requirements have been made, streamflows have been stabilized for both industrial and municipal purposes; navigation needs have been met, but with curtailed seasons.

Additionally, the reservoirs have provided substantial and growing recreational benefits. These benefits, admittedly partial, have accrued in spite of 3 low-water years which, unfortunately, occurred during the initial filling period for the main-stem reservoirs.

Small gains in water storage have been accomplished, in spite of insufficient precipitation in the upper Great Plains.

IV. PRESENT OPERATION OF THE RESERVOIR SYSTEM

The Missouri Basin has been unique in that the original planning, construction, and now the operation of the reservoir system has involved the States in the basin to a greater degree than ever before in any regional river-basin project. This has been accomplished through several vehicles.

Primary ones have been the Missouri Basin Interagency Committee, consisting of the 10 governors, plus the interested Federal agencies,

and the Missouri River States Committee, consisting of the 10 governors and their appointed representatives. The MBIAC has met monthly, and the 94th meeting thereof is scheduled for May 1 in Lincoln, Nebr.

Another factor has been the Missouri River Reservoir Coordinating Committee, consisting of representatives of the 7 States through which the river flows, plus the 7 interested Federal agencies. That committee has decided in advance the actual reservoir-control operation, based on all possible rainfall situations.

Instructions from the coordinating committee are implemented by the reservoir-control center in Omaha, manned by the Corps of Engineers, which has the final legal responsibility for reservoir operation.

It is significant that the Corps of Engineers makes no unilateral decision with regard to the reservoir operation. That committee, interpreting Public Law 534, the Flood Control Act of 1944, allocates water as follows:

1. Adequate empty flood-control storage is provided.
2. Irrigation and other upstream uses are allowed for.
3. Downstream urban water supply and stream sanitation requirements are met.
4. The remaining available water is regulated in such a manner that the outflow from the lowermost reservoirs conforms to the requirements of navigation with releases from individual reservoirs scheduled so as to provide for the generation of maximum power consistent with the foregoing uses.
5. Minor variations are provided for recreation, fish and wildlife conservation and other subsidiary benefits.

V. FUTURE OPERATIONS

After Oahe is completed and filled, an additional 24 million acre-feet of storage will be available. Ultimate storage capacity of the reservoir system is over 75 million acre-feet. Downstream needs, as measured at Sioux City, are 18,700,000 acre-feet. Average annual flow is 25 million acre-feet, providing a surplus of 6,300,000 acre-feet with normal water supply. With all the reservoirs in operation, 95 percent of the power potential of the reservoirs will be realized.

The current adverse water situation is temporary. With completion of the dams and normal waterflows, the system will be able to provide full service for all authorized functions, plus a surplus flow during normal years for replenishing the reservoir system during future low-water years.

The main-stem reservoirs were designed with sufficient capacity and flexibility for all authorized functions—once they are all in operation. Studies on water adequacy, made by the interagency committee and unanimously agreed to by that committee, support this contention.

This includes irrigation and other purposes cited in the O'Mahoney-Millikin amendment as well as maximum hydroelectric power consistent with other water needs. The very flexibility of the system, allowing water releases to be recaptured in the lower reservoirs, provides for substantial winter peaking ability for electric power while at the same time reserving water for downstream summertime requirements.

Thus, there will be a great compatability among water needs, once the dams are completed and the reservoirs filled.

We think it is important that the States are now actually participating in the operation of these reservoirs.

The States which have been imploring Congress to investigate this alleged misuse of water already had a vehicle in the coordinating committee and the Missouri Basin Interagency Committee, to which they could have, and to which they should have, gone.

I was delighted when Mr. Grimes agreed that in the basin we are perfectly capable of handling our own problems, without bringing those problems out and having them discussed in a congressional hearing, such as this.

VI. JUSTIFICATION FOR PRESENT OPERATION

The Flood Control Act of 1944 recognized that in the multiple-purpose development of the water of the Missouri Basin, all interests, both upstream and downstream, must be recognized.

The compromises contained in the law were sound evidence that the basin States could get together on a mutually advantageous program, retaining their rights to an equitable share in the benefits of controlled water.

Since that time the construction phase of the program has proceeded until the present time, when more and more emphasis can be placed upon the utilization phase of the river program. This utilization phase must necessarily involve both upstream and downstream citizens. It must also recognize the needs of all areas for water from the Missouri River.

It has been the opinion of the Mississippi Valley Association and sound-thinking businessmen and farmers throughout the basin that equity and moderation should prevail; that until the main-stem reservoirs are completed and filled, citizens of the basin should share and share alike in both the benefits and the disadvantages presently available in the incomplete system.

Basin residents from Bismarck to the mouth, interested in present and future water transportation into the great Missouri Valley, have a responsibility to protect that interest and to prevent a premature decision on water allocation which would affect the availability of water for navigation.

The importance of water transportation into the Missouri Basin cannot be overlooked. The upstream power interests have chosen to ignore the value of navigation to the entire basin and to the Nation. The present navigable stream now extends as far north as Omaha. It will reach Sioux City within the next few years. The next segment will reach Yankton, S. Dak. Navigation will ultimately be extended into the slackwater pools above the dams, as far north as Bismarck.

No decision on water allocation should be formalized now which would jeopardize that development of water transportation into the upper Missouri Basin.

The benefit of water transportation into a regional river valley like the Missouri can best be illustrated by citing the advantages now accruing along the rest of America's inland waterways system.

Tremendous amounts of grain move to terminal markets via water at rates considerably lower than competing transportation modes.

Steel, oil, fertilizer, molasses, and other heavy, bulky commodities have, by virtue of low-cost water transportation, substantially reduced the costs of those commodities to citizens of other areas.

Industry has developed along the Nation's rivers, improving the economy of both city and country. The Missouri Basin is in perhaps the most dire need of diversifying its economy of any area in the Nation.

Recent drought years and a decline of farm population have proved the need for other types of employment.

A denial of the inherent benefits of water transportation would work irreparable harm to the Missouri Basin's future economy.

Admittedly, water transportation on the Missouri River is a young industry. Its real potential is yet to come.

Nevertheless, commercial tonnages have approximated a half million tons annually in recent years. The potential is estimated to be in excess of 10 million tons annually.

Savings of as high as 5 cents per bushel will accrue to farmers by virtue of barge movement. These benefits are already accruing to farmers in the lower basin, where competitive grain-loading facilities are available.

Similar substantial savings are available in the movement of other heavy commodities. Water-propelled surface transportation rates have reduced the transportation costs of many commodities in the basin.

For example, prior to recent rail rate reductions, some steel products moved by barge for as much as $8 to $12 less per ton than by rail.

Further, cities along the Missouri River have every right to expect stable flows, with adequate water available not only for minimum sanitation and water supply purposes, but also as an inducement to industry. River cities are citing the availability of stable water for industrial processing and industrial waste disposal—in addition to navigation—as an inducement to industry.

Any decision by Congress which would upset the decision made 13 years ago on the priority of water uses would seriously affect the ability of those cities to provide stable water supplies for industrial purposes.

It is ironical that the group now demanding a disproportionate share of river water are advocating its use for a purpose not mentioned in the O'Mahoney-Millikin amendment. Downstream cities have accepted the spirit and letter of that law and have no quarrel with retention of water arising west of the 98th meridian for irrigation and other purposes cited in the law.

Hydroelectric power, however, was considered a subsidiary and incidental benefit in the original act and, according to the Corps of the Army Engineers, can never provide more than 17 percent of the ultimate prospective energy demands of the area.

Another important factor is that this controversy, if continued, will disrupt the unity of the Missouri Basin for the first time since the program was begun. The need for moderation has never been more acute. It is imperative that all interests share in the benefits, as well as the disadvantages of the present situation.

The attitude of Congress toward continued appropriations to complete the program may be adversely affected if upstream interests persist in their demands for a disproportionate amount of water.

It should be made clear, however, that no one should object to a competent analysis of basinwide water needs. This, however, has been and is being accomplished on a continuing basis through the Missouri Basin Inter-Agency Committee and the Reservoir Coordinating Committee with all affected States participating.

The comprehensive Missouri Basin development program was designed to provide the maximum benefits to all basin citizens. No single segment of the citizenry in the basin was intended to have a disproportionate share of the benefits. They were to accrue equitably to all citizens, both upstream and downstream.

That decision was made 13 years ago.

It is imperative, therefore, that the citizens of the basin defend the original law and the administration of that law as participated in by both Federal and State agencies.

I was very much interested last night in hearing Senator Case. He mentioned that certain ores in South Dakota have up to 35 percent aluminum, which would provide perhaps in the future a great industry for that State.

If any aluminum industry is going to go into South Dakota and set up aluminum plants, they will have to figure out a way to get the aluminum out of there.

Any talk about downplaning the navigation of the Missouri River, to these slack-water pools, to the areas where they have these great natural resources, might endanger that future industrial development.

I do not think that is what the people up there want.

Under those circumstances, it does not seem appropriate that now, before the program is completed, we get into a discussion or controversy between groups in the upper basin, who should have as much interest in water transportation as others in the down basin, as to whether water should be used for one purpose or another, or who should have priority.

Let us send it back to the States, and let their own people figure it out. I am sure they can do that.

Thank you very much.

Senator MURRAY. Thank you, sir.

There are three witnesses representing chambers of commerce. There is also a matter on the floor, in which some of us are interested. I will have to leave in a very short time.

I wish these witnesses could summarize their statements for the record; or, if they wish, they may read their entire statement.

The next witness will be Mr. Keith Meade, of Atchison, Kans.

STATEMENT OF KEITH MEADE, SECRETARY-MANAGER, ATCHISON CHAMBER OF COMMERCE, ATCHISON, KANS.

Mr. MEADE. My name is Keith Meade. I am secretary-manager of the Atchison, Kans., Chamber of Commerce.

Atchison is 55 miles above Kansas City, on the west bank of the Great Western Bend of the Missouri River.

I have been directed by my organization to appear at this hearing to place the organization and our city on record as favoring a con-

tinuance of the prevailing authority, whereby an equitable distribution of the water in our great valley has been accomplished.

We do not want more than our fair share; we will object, however, to any single segment in the valley demanding more than its proportionate share.

We believe the Flood Control Act of 1944 and the O'Mahoney-Millikin amendment were and are sound.

We are disturbed that there is a disruption of unity of the various interests in the Missouri Basin.

We are interested in seeing that all groups work together to complete the comprehensive program.

Our State has recognized that water is one of the most valuable assets we have. It has established the Water Resources Board to plan, study, and recommend how water can be used most effectively in our State. It is doing a good job. But Atchison, our State and our whole valley suffer the handicap of being located in an area sparse in population. The trend in industrial development today is for industry to become more market centered. In all of our basin there is a decline of population.

My own county lost 6 percent of its farm units in the 5-year period from 1950 to 1954. This trend in farming will probably continue. Therefore, it is imperative that we hold and even expand our population by adding employees to our existing industry and attracting new industries. As a step in this direction the city of Atchison has purchased riverside property and constructed a municipal wharf.

Fortunately, Atchison is already an industrial community. Fifty percent of its gainfully employed work in industry. One of these industries, our alcohol plant—the only one in the State—uses more water each day than all the other users of the city combined.

Our interest is not limited solely to the water which we receive and use. Our community is undertaking, at substantial expense, the construction of a sewage disposal plant. This is one of our important contributions to the solution of the problems in the overall program in the valley. It is of particular importance to communities downstream from us.

Grain processing and storage is an important industry in Atchison. Only five cities in Kansas outrank our community in elevator capacity. Atchison's grain merchants and the farmers it serves in a large adjacent area have an important stake in the development of low-cost water transportation. One example will suffice.

Barge-serviced molasses terminals were established on the Missouri in 1954 and 1955 and brought about reductions in rail freight rates. Molasses is a major ingredient in the production of livestock feeds and an important cost factor to the cattlemen in the production of meat.

What better example is there of the advantage to an agricultural area?

Still in the field of agriculture, the community of Atchison is vitally interested in the development of Pick-Sloan agricultural levees. These protect most of the bottom land to the north of our city, but levees to south are yet to be completed. In the devastating flood of 1952 the land behind the levees withstood the flood; unprotected land experienced great loss.

This season, for the first time, some of our land will be under irrigation. The further extension of this beneficial use of water will assure high and consistent agricultural production so needed by the farmer.

Although national defense is not an authorized part of the Flood Control Act, it demands attention. At Atchison is an underground storage facility of the Ordnance Corps of the United States Army.

A study is being made which is expected to prove the feasibility of barging inbound production equipment destined for layaway in this million and one-half square foot cave—the largest in the world. Substantial savings will accrue to the Federal Government and ultimately to the taxpayer.

I have pointed out Atchison's concerns in the use of water in our valley. These are industrial development, water for industrial and municipal purposes, the advantages of lower transportation costs, flood protection, irrigation, and national defense.

They are very similar to the interests of the people in the entire basin. All interests must continue to work in harmony so we can continue to move forward rapidly. Thank you for the opportunity to make these statements.

I have a telegram which I received after my statement was prepared, which telegram I would like to read.

Senator MURRAY. Very well.

Mr. MEADE. Before I came to Washington, I was not able to talk with our city commission and our city manager was out of town. After arriving here, I received this telegram:

> We believe it appropriate to indicate Atchison city government's interest in the Missouri River to the Senate committee. Your statement undoubtedly includes reference to this. City has actual and proposed investments based on existing water allocation.
>
> WILLIAM R. YERKES, *City Manager.*

Thank you, Mr. Chairman, and that will conclude my statement.

Senator MURRAY. Thank you very much.

The next witness is Mr. E. H. Stearns, of Yankton, S. Dak.

STATEMENT OF EUGENE H. STEARNS, MANAGER, YANKTON, S. DAK., CHAMBER OF COMMERCE

Mr. STEARNS. Gentlemen of the committee, my name is Eugene H. Stearns. As manager of the Yankton, S. Dak., Chamber of Commerce, I represent its 400 members at this hearing. Our membership comprises over 93 percent of the business and professional people of our city.

Yankton has always supported the Flood Control Act of 1944 and the policies which have guided that program for 13 years.

The act was supported by Missouri Basin leaders primarily because of the provisions for flood control. The resulting benefits of irrigation, navigation, power, and recreation were then considered incidental to the principal reason for the act—flood control.

The people in the Yankton area are cognizant of these incidental benefits which will be increasingly important to our region after the main-stem dams are completed.

Yankton is especially interested in the navigation potential offered by a controlled Missouri River. We believe the availability of water

transportation will result in better prices for our area's grain producers. Our farmers' income needs as much assistance as we can economically give. We feel that by having water transportation available freight rates will be reduced sufficiently to reflect a higher market price per bushel to our farmers. It will also remove a serious impediment to industrial development of our region.

We are also in agreement that power and irrigation benefits are desirable features of these multipurpose dams.

We do believe, however, that when the committee has heard the testimony of every witness at this hearing it must consider the fact that the money being spent on development of the Missouri Basin is not the Missouri Basin's money alone.

Taxpayers all over our Nation are sharing the cost of the program and, in the final analysis, the policy that results in the greatest benefit to the greatest number of people of our country is the final and fundamental question to be resolved.

We in Yankton feel that the present policy has met the test of every critic, including the group present at this hearing who are so concerned about water being wasted. The present policy was developed by representatives of Federal agencies and basin State officials, and was not hastily conceived in any respect.

The past 3 years have been abnormally dry in the Missouri Basin. There would be no need for this hearing, nor would any group be concerned with water-use policy if our reservoirs were more nearly full.

I am sure that those present at this hearing who are suggesting that a wasteful use of Missouri River water has been made would be hard pressed to find fault with the present policy if the Fort Peck, Garrison, Fort Randall, and Gavins Point Reservoirs were more nearly full.

This is a temporary condition and should not cause this committee much concern.

We who live in the Missouri Basin and have worked for many years to develop our area resources do not enjoy having those persons with limited vision demanding special privileges for a relatively small group of Missouri Basin citizens.

There are many times their number in our State and in the downstream basin States who will stand together with us in Yankton, when we state that we believe firmly that we are being treated fairly and equitably under the present water-use policy. We do not want to see that policy altered.

Thank you for the privilege of appearing before you.

Senator MURRAY. Thank you very much.

The next witness is Mr. Carter W. Dennis, president, chamber of commerce, Sioux City, Iowa.

STATEMENT OF CARTER W. DENNIS, PRESIDENT, CHAMBER OF COMMERCE, SIOUX CITY, IOWA

Mr. DENNIS. Mr. Chairman, and members of the committee, it is a privilege to speak before this committee of the United States Senate on a subject which is of the utmost importance to Sioux City and other cities located in the Missouri Basin States: The allocation of Mis-

souri River water under the Pick-Sloan plan, as set forth in the Flood Control Act of 1944.

As a representative of the Sioux City Chamber of Commerce, I wish to give you a clear-cut picture of the potentials of the Missouri River as it affects our city now and will affect it in the future.

Once an unruly and untamed stream, the Missouri was given the nickname of "Big Muddy," and such it was.

Floods plagued cities along its banks. The channel was unpredictable because of the shifting bars and enormous amount of silt carried from upstream.

Today, the Missouri River is no longer "Old Muddy." Its water is clearing up. Its channel is being stabilized, thanks to the ambitious program of containment carried out by the United States Army Corps of Engineers as it continues to harness the Missouri by the series of upstream dams.

Sioux City, recognizing the great possibilities for industrial expansion that can result from the "New" Missouri River, for many years has sought the improvements that are now nearing completion under the Pick-Sloan plan.

Our city is gearing its industrial development plans of the future toward use of the Missouri River for navigation and other purposes, knowing the opening of barge traffic on the great river will link our trade territory with the vast area lying to the south, from Sioux City to New Orleans; also north through the Mississippi, the Illinois River, Great Lakes, St. Lawrence route, east on the Ohio and Tennessee Rivers.

Thus, it is highly important for the future of Sioux City that the original concept of the Pick-Sloan plan continue uninterrupted until the job is completed.

The multipurpose nature of the Flood Control Act of 1944 was evident in the measure itself. It authorized the upstream reservoirs, downstream bank stabilization, tributary stream projects and agricultural levees for multiple-purpose uses: flood control, irrigation, navigation and hydroelectric power.

Under this act all interests, both upstream and downstream were recognized. It is our belief that the spirit of the Flood Control Act of 1944, until recently, has been followed faithfully by downstream cities and by the States concerned through the Missouri River Coordinating Committee, consisting of representatives of the 7 States through which the river flows, plus 7 interested Federal agencies.

Now that unanimity of action is threatened by a group of Rural Electric Cooperatives in South Dakota, North Dakota, and Montana. The legislatures of those three States memorialized Congress to investigate the allocation of waters from the Missouri River reservoirs, holding that upstream hydroelectric power generation was being subordinated to downstream navigation in violation of the O'Mahoney-Millikin amendment to the Flood Control Act of 1944.

Significantly enough, however, hydroelectric power was considered a subsidiary and incidental benefit in the original act. Indeed, according to the Corps of Army Engineers, it can never provide more than 17 percent of the ultimate prospective energy demands of the area.

It is our contention that Sioux City and other cities along the Missouri River have the right to expect stable flows, with adequate water available not only for navigation, minimum sanitation and water supply purposes, but also as an inducement for industry.

Such was the intent of the Flood Control Act.

We do not begrudge the upstream States the holding back of Missouri River water in the reservoirs there. But we do earnestly contend that one of the major purposes of the Pick-Sloan plan was to provide an adequate summertime flow for navigation, and that the spirit of the act would be violated if the South Dakota REA group were successful in upsetting the present operation of the river flow.

It should be pointed out that with the completion of Oahe and Big Bend Dams in South Dakota, additional storage will be available when those reservoirs are filled.

In addition, the past 3 years of drouth have brought curtailment of navigation in order to conserve adequate water reserves for maintaining the late summer and winter flow. These two factors indicate the temporary nature of any water storage that may exist for hydroelectric power for the REA groups.

It is worthy of note that under the stewardship of the coordinating committee and the Army engineers, there have been upstream water reserves available to be sent to the rescue of major downstream cities in two fall seasons, when their municipal supplies were jeopardized by drouth over much of the Mississippi-Missouri system.

This has been an example of good water management in a trying period of general moisture deficiency which has not yet ended.

Under such management we are confident that all purposes—municipal water needs, irrigation, navigation and power—will be fairly served and in far greater measure as the remaining dams are completed, with the REA's sharing in double quantity, due to their priority claim on power, and the additional overall capacity that will be added to the storage system for all purposes.

It is our firm conviction that the present control of Missouri River flow is in harmony with the principles of the Flood Control Act, and that only the continuance of that harmony can bring the maximum benefits attainable to the whole basin from the yet unfinished program.

Mr. Chairman, I would also like to submit for the record an article which appeared in the Sioux City Journal, Tuesday, April 16, 1957, on the editorial page.

Senator MURRAY. That may be entered into the record.

(Article referred to follows:)

[The Sioux City Journal, April 16, 1957]

DANGER FOR THE BASIN PROGRAM

A fight that could seriously retard the full harvesting of Missouri River Basin benefits seems scheduled for kickoff in hearing before the Senate Interior and Insular Affairs Committee, May 1 and 2, in Washington, D. C.

Public power interests in at least two upper-basin States—South Dakota and Montana—will be attempting to prove that the Army engineers have been favoring navigation in the water releases from the big mainstem dams in the Dakotas.

The truth is that manipulation of the river's flow is based on coordination of all the needs and interests of the 10 Basin States. Obviously no single interest or any specific State is going always to get all it wants at any given season because there are so many water rights and supply factors involved. This has been particularly true and will continue to be true in the years before the closing and filling of all the mainstem dams, especially if run-off moisture does not quickly return to a normal average.

The impression given by the public power interests, in their contention that the river should be run to provide the maximum firm power even if such a policy renders impossible a stable, navigable channel, is that publicly owned power utilities are not getting their fair share of the overall Missouri Basin benefits.

This attitude completely ignores the fact that under Federal law the public power groups get first call on all firm power that is available at Government-owned dams. It ignores the fact of great federally financed transmission lines built to carry this cheap power to priority public power groups and it ignores the fact of low-interest Government loans to build cooperative lines like the East River rural electric cooperatives of South Dakota who demand more firm power at the expense of minimum navigation and water conservation interests of the several States downstream.

The further fact of the future is that the public power groups—the REA's and the municipally operated power system in the basin—will be getting even more cheap Government power of the firm variety when Oahe Dam at Pierre, S. Dak., the biggest in the whole system goes on the line in the next 2 to 3 years, and Big Bend, a smaller but highly productive hydropower project, follows a little later. All that firm power in addition to what the public power groups are already receiving from such dams as Gavins Point and Fort Randall in South Dakota, Garrison in North Dakota and Fort Peck in Montana, and yet the public power groups of eastern South Dakota want more.

The river belongs rightfully to all the areas in the basin. Its operation to the best maximum benefits to all the people of the basin depends on a cooperative, give-and-take attitude—in a word, on unity and harmony—which in the last analysis helped persuade the Nation that the multipurpose Missouri Basin program was wanted and was feasible, engineeringly and politically.

The public power groups have tried repeatedly to convince basin leaders, at periodic meetings of the Missouri Basin Interagency Committee, that public power groups should be given still greater priority over navigation. They have been repeatedly turned back by the majority which favors the greatest good for the greatest number in the basin.

Now the pressure move, with the backing of South Dakota and Montana Legislatures in their demand for a congressional investigation of water use at mainstem dams, has been transferred to the Washington arena.

If the Democrat-dominated Senate committee will hear fairly all interests and not merely those who've refused to abide by the will of the basin majority, and takes cognizance of all the effort that goes into balancing and sharing the basin benefits to all, Congress will receive a valuable review of the whole situation. But if the committee denies a fair airing, the cause of intrabasin unity within Congress, on which implementation of future basin projects depends so much, could receive a damaging blow, if indeed it has not already, in view of a burgeoning economy drive by Congress at a time when one mainstem dam is yet incompleted and another, Big Bend, is yet unauthorized. Little good can come from the public power grab effort and a great deal of harm could accrue to the interests of everyone in the basin.

Senator MURRAY. We wish to thank you, Mr. Dennis, for your statement.

At the request of Senator Hruska, there will be inserted in the hearing record at this point a letter to Senator Chavez and me from C. V. Price, chief, division of Nebraska resources, Lincoln, Nebr.

There has also been sent to me, for inclusion in the record, Senate concurrent resolution No. 11 passed by the Kansas Legislature. Without objection, they will appear in the hearings.

(The material referred to follows:)

STATE OF NEBRASKA,
Lincoln, April 29, 1957.

Senator JAMES E. MURRAY,
Chairman, Senate Committee on Interior and Insular Affairs,
Washington, D. C.

Senator DENNIS CHAVEZ,
Chairman, Senate Committee on Public Works,
Washington, D. C.

GENTLEMEN: As the active executive of this division of Nebraska's State government, with principal objective that of bringing much-needed payrolls into the State, I should like to emphasize the importance of low transportation rates to this center-of-the-country location—and accordingly the importance to us of the navigable Missouri River.

We sincerely hope that no upstream diversion will be authorized which may prevent our use of the river for this purpose; i. e., that there be no authorization for a disproportionate amount of this water to go for any one purpose.

What we want—and all we want—is the equitable use division of the main stream reservoir of the Missouri Basin as originally set forth under the Flood Control Act of 1944.

Please be assured your consideration of this viewpoint, which we consider to be a fair one, will be sincerely appreciated in this part of the country.

Very truly yours,

C. V. PRICE,
Chief, Division of Nebraska Resources.

SENATE CONCURRENT RESOLUTION No. 11

A concurrent resolution petitioning the Congress of the United States to take appropriate action to assure the continuance of surveys and planning and cooperation in the construction of projects in the State of Kansas that are vital and necessary to the conservation of soil and water by the Bureau of Reclamation, the United States Department of Agriculture, and the Corps of Engineers and other Federal agencies and departments

Whereas water and soil are the most valuable natural resources of Kansas; and

Whereas the citizens, industries, farms, and cities of Kansas have always been subject to flood and drought but more recently they have experienced severe hardships and great financial losses from floods and droughts during the years 1951, 1952, 1953, 1954, 1955, and 1956; and

Whereas many cities, industries, and farms are suffering from a critical shortage of water, and, at the same time, are exposed to the further hazards of floods and droughts; and

Whereas, it has become evident that we must use every means available and feasible to conserve and control all of the sources of water supply; and

Whereas the nature of rivers is such that storms occurring in headwater regions of a stream in one State frequently inflict damage to areas in other States; and

Whereas there is a vital need for bolstering stream levels for the benefit of entire valleys and entire regions; and

Whereas the Federal Government through acts of Congress has delegated to three agencies, namely, the Bureau of Reclamation, the Soil Conservation Service of the United States Department of Agriculture, and the Corps of Engineers the principal responsibilities for the conservation of water and soil, and, more specifically, such matters as flood control, water supply, irrigation, pollution control, and soil conservation, and has also delegated to other Federal agencies and departments matters related to the conservation of water and soil, flood control, water supply, irrigation, and pollution control: Now, therefore, be it

Resolved by the Senate of the State of Kansas (the House of Representatives concurring therein), That we respectively urge, request, and petition the Congress of the United States to take what actions are necessary to assure continuance of surveys and planning and assure cooperation in the construction of projects

in the State of Kansas that are vital and necessary to prevention of floods, and to the conservation of soil and water, by the three agencies, namely, the Bureau of Reclamation, the Soil Conservation Service of the United States Department of Agriculture, and the Corps of Engineers, and also other Federal agencies or departments; and be it further

Resolved, That the secretary of state be instructed to transmit enrolled copies of this resolution to the President of the United States, the Vice President of the United States, each Member of the Congress of the United States, and the Director of the Bureau of the Budget of the United States.

I hereby certify that the above concurrent resolution originated in the senate, and was adopted by that body February 28, 1957.

JOSEPH W. HENKLE, Sr.,
President of the Senate.
RALPH E. ZARKER,
Assistant Secretary of the Senate.

Adopted by the house April 3, 1957.

JESS TAYLOR,
Speaker of the House.
A. E. ANDERSON,
Chief Cerk of the House.

Senator MURRAY. That will conclude the hearings for today.

There are no other witnesses who have been scheduled to testify on this date.

We will now recess, and reconvene tomorrow morning at 10 o'clock.

(Whereupon, at 4:30 p. m., the committee recessed, to reconvene at 10 a. m., Thursday, May 2, 1957.)

MISSOURI BASIN WATER PROBLEMS

THURSDAY, MAY 2, 1957

UNITED STATES SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS; AND
COMMITTEE ON PUBLIC WORKS,
Washington, D. C.

The joint committee met at 10 a. m., pursuant to recess, in room 224, Senate Office Building, Hon. James E. Murray (chairman) presiding.

Present: Senators James E. Murray (Montana); Frank A. Barrett (Wyoming); and Francis Case (South Dakota).

Senator MURRAY. The committee will come to order.

Gov. Herschel Loveless, of Iowa, who was listed to be the first witness this morning, cannot be here, but is sending us a statement which will be included in the record at this point.

(Governor Loveless' statement follows:)

STATEMENT OF THE HONORABLE HERSCHEL C. LOVELESS, GOVERNOR OF IOWA, BEFORE SENATE INTERIOR COMMITTEE AND SENATE PUBLIC WORKS COMMITTEE ON THE UTILIZATION OF WATER IN THE MISSOURI RIVER BASIN

As is well known, the Missouri Basin has been developed as a multipurpose project, as authorized in the Flood Control Act of 1944. This act provided for flood control, irrigation, navigation, and hydroelectric power developments. The O'Mahoney-Millikin amendment provided that the use of water for navigation should be restricted to such flows as would not conflict with any beneficial consumptive use of water arising in States west of the 98th meridian for domestic, municipal, stock water, irrigation, mining, or industrial purposes.

The present concern in at least some areas of the Missouri Basin arises fundamentally from the fact that there has been insufficient rainfall in recent years to permit full and complete operation of the Missouri Basin projection to the satisfaction of the various groups interested in it. During the past 3 years waterflow has averaged less than three-fourths of normal. It would be a serious mistake from a long run point of view, to change the fundamental multiple nature of this development in order to meet what is in all probability a short-run deficit in rainfall. While I am sympathetic to the interest which would place a much higher priority on the use of water for the generation of electric power, it is suggested that this use should not be given special preferential treatment, as it would be in basic conflict to the original act under which the development of the Missouri Basin was undertaken.

It is especially important to bear in mind that there are many cities and towns in the Missouri Basins which depend upon an adequate flow of water through the year for municipal water and sanitation purposes. Any severe reduction in the flow of water past these cities would create severe hardships and potentially public-health problems.

The area served by the Missouri River and its present tributaries is undergoing marked economic changes, with significant shifts from strictly agricultural and agriculturally oriented occupations to a more diversified industrial economic structure. Many of these industries which have recently located in the basin are dependent upon water for cooling and for use in various industrial processes.

In addition, many of the towns and cities depend upon the electricity generated by steam plants utilizing river water. The needs of this group of users must also be borne in mind as was intended in the original act under which development was initiated. If the States served by the Missouri River Basin are to continue to progress in the diversification of their economic structures, it is extremely important that the utilization of the Missouri River water resources continue to be carried out on a multipurpose plan.

It also needs to be borne in mind that, historically the Missouri River Valley has been subject to severe flooding with tremendous economic loss and also the loss of human life. The present development of the river through a series of storage reservoirs would not only serve the interest of navigation and hydroelectric power, but is also providing for substantial measures of prevention against destructive floods which have been experienced in the past. In this connection, it should be pointed out that flood control will make available additional industrial sites along the banks of rivers in the basin, which have heretofore been unacceptable because of the dangers of flooding.

In conclusion, it is my recommendation that the utilization of the water resources of the Missouri Basin should be made consistent with the multipurpose objective established when this development was undertaken, keeping in mind the interests of electric power generation, water for municipal use and sanitation purposes, farm irrigation, industrial uses, and industrial sites, transportation, flood-control and recreational purposes.

All present commitments for Missouri Basin firm power have been met according to the Bureau of Reclamation (April 25, 1957). While there is an understandable concern on the part of those groups interested in larger amounts of low-cost Federal power, it should also be borne in mind that other interests are also concerned over the benefits to be received from the reservoirs which have been constructed for multipurpose objectives. The gain in water in storage during the last few years, which has been made possible by compromise of all interests, carefully arrived at by technically trained men of the affected States and Federal interests, meeting several times each year, represents fair and equitable progress toward the completion of the harnessing of Missouri River flows for the optimum benefit to all the inhabitants of the basin. Many of the conflicts which are now alleged to exist can reasonably be expected to be resolved by a few years of normal rainfall which will permit all interests to be more adequately served. In the meantime, all interest must understand that the fundamental multipurpose nature of the Missouri River Basin development should not be disturbed to meet what is in all likelihood a temporary condition.

Senator MURRAY. Our first witness this morning is from Iowa. I wish to put into the hearings a letter I have received from Mr. John M. Naughton, State representative from Sargeant Bluff, Iowa, Woodbury County, emphasizing his area's need for low-cost power. According to Mr. Naughton, Sioux City, Iowa, pays the third highest rate in the United States, $9.25 for 250 kilowatts of energy used by residential consumers. This is in spite of the fact that the Iowa Public Service Co. gets considerable power from Fort Randall Dam during the navigation period at less than 3 mills.

Without objection, this letter will be printed in the hearings at this point.

(The letter referred to follows:)

STATE OF IOWA,
HOUSE OF REPRESENTATIVES,
Des Moines, April 29, 1957.

Senator JAMES E. MURRAY,
Chairman, Senate Committee on Interior and Insular Affairs,
Senate Office Building, Washington, D. C.

DEAR SENATOR MURRAY: As the elected representative of the more than 100,000 citizens of Iowa's second largest county, I am very much concerned by the high cost of electricity to my constituents. According to figures issued by the Federal Power Commission for January 1956 the cost of 250 kilowatt-hours of electricity to a residential consumer in Sioux City was the third highest in the country for cities over 50,000 population.

I had hoped that the availability of relatively low-cost power from Fort Randall Dam might result in lower rates to consumers; however, this has not occurred. The Iowa Public Service Co., which provides electricity for Sioux City and the surrounding area, has been obtaining the major share of power from Fort Randall Dam. During the March to November navigation season in 1956, IPS obtained 137.7 million kilowatt-hours of energy from Fort Randall, an amount which I understand is equivalent to more than 25 percent of the company's total sales of electric power during this 9-month period. IPS paid the Government 2.83 mills per kilowatt-hour for this energy; Sioux City consumers continued to pay $9.25 for 250 kilowatt hours, or 3½ cents per kilowatt-hour.

I am calling these facts to your attention because of your committee's interest in the Missouri Valley area. Low-cost electric power is important to both residential and farm users; it would also be valuable in helping to attract badly needed new industries to our area. I know that the people of Woodbury County would deeply appreciate any assistance you can lend to the accomplishment of this goal.

Sincerely,

JOHN M. NAUGHTON,
State Representative.

Senator MURRAY. The first witness on the agenda this morning is Mr. A. S. Wendel, vice president, Woodbury County Rural Electric Cooperative, from Bronson, Iowa.

STATEMENT OF ALVERN S. WENDEL, VICE PRESIDENT, WOODBURY COUNTY RURAL ELECTRIC COOPERATIVE; ACCOMPANIED BY GEORGE GERKING, MANAGER, MONONA COUNTY RURAL ELECTRIC COOPERATIVE

Mr. WENDEL. Mr. Chairman, gentlemen of the committee, my name is Alvern S. Wendel. I am a farmer from Bronson, Iowa. I am vice president of the Woodbury County Rural Electric Cooperative, with headquarters at Moville, Iowa. We serve about 2,100 farms in the county. I am also vice president of the Northwest Iowa Power Cooperative, commonly referred to as NIPCO, a transmission system formed by 10 rural electric distribution cooperatives in northwest Iowa, as a means of wheeling electric energy generated at the dams on the Missouri River to the member cooperatives.

I am accompanied by George Gerking, manager of the Monona County Rural Electric Cooperative with headquarters at Onawa, Iowa, and whose territory borders that of our own. They are also members of NIPCO. Immediately bordering Monona County is the territory of the Harrison County Rural Electric Cooperative with headquarters in Woodbine, Iowa, a third member of NIPCO and also particularly interested in the particular phase of this hearing with which I shall deal. My testimony has been jointly prepared by all three of these systems.

The purpose and scope of this presentation is to bring to your attention the urgent need of a most vital part of our national economy, namely agriculture, for a method by which the element of chance can be materially reduced in farming operations by the utilization of acceptable and economically feasible methods of irrigation, and the part that power generated on the Missouri River can play therein.

The major industry in northwest Iowa is agriculture. With normal rainfall it is a lush and productive land, but this is definitely contingent upon ample moisture. Within the last 3 years it has not

been uncommon to experience an annual deficiency of normal rainfall in amounts up to approximately 6 inches. This, combined with a serious reduction in farm income, has resulted in at least 200 to 250 farmers leaving their farms within the past year in the Missouri River Basin area in Iowa located largely in the three mentioned counties of Monona, Harrison, and Woodbury. A continuation of this trend can seriously threaten the prime industry in this area.

Within this Basin area, shown by the map you see, the shaded part outlined in red, there is a huge supply of underground water available relatively close to the surface. In fact, we are told, this supply is a veritable underground river. This area consists of approximately 370,000 acres of land in the 3 counties.

While my faith in the elements of nature has not been shattered in the last 3 years to the extent that I no longer trust the Lord, at the same time, particularly with respect to rainfall, I also remember "The Lord helps those who help themselves." The Iowa farmer is not without ingenuity and, if the needed moisture does not come from the heavens he can, and will, turn to other methods available to him, if within the realm of economic feasibility, and pump it from the soil as needed for application at the proper point.

At the present time in this tricounty area there are approximately 160 such wells, 150 more are anticipated in the immediate future and the ultimate potential is estimated to be 1,700 wells based upon an actual survey recently completed in Monona County.

There are various sources of power used for irrigation, including tractors, stationary engines and electric motors. All of these various sources have, perhaps, some advantages peculiar to them, but, all but one have one serious disadvantage. This is the costs in connection with the ultimate overhaul called for under almost continuous operation. The electric motor does not, necessarily, have this disadvantage to the degree common in the other power sources. Electric power also has many other advantages, some of them being no need for storage or transportation of fuel, ease of control, etc. However, one very important factor in the use of electricity for such purpose is the cost of extending existing lines to the well. This, necessarily, increases the investment costs and, hence, the actual cost of the energy is a most important factor in determining the economic feasibility for the application of electric energy as a power source in irrigation. If this can be held within reasonable limits a most valuable tool is placed in the hands of the farmer.

At the present time the member cooperatives of NIPCO can purchase firm wholesale power, which may be used for irrigation purposes if they so choose, at an average cost of 5.5 mills, while during the navigation season the Iowa Public Service Co. can purchase large quantities of dump power from the Bureau of Reclamation which can be used for the same purpose, and last year they paid an average rate of 2.83 mills.

The reason for this differential is that IPS can firm up secondary power with their own generation while NIPCO does not have this advantage. Hence, NIPCO members are served with firm power—available at all times—at a higher rate and under present-day regulations cannot take advantage of the lower cost secondary and dump power which is made available to IPS.

This is all theoretical and from that standpoint may appear to be right and proper. But let's examine this situation a bit closer in the light of facts. At the present time, due to the release of navigation water, the so-called secondary power, during this season, is for all practical purposes firm power. Last season we believe the Bureau experienced difficulty in finding a market for it as secondary power and so was required to dispose of much of it as dump power at a still lower rate and at a decided reduction in income to the Government. Hence this power is being sold under the name of secondary or dump power at a 2.67 mill rate, less than we have to pay for what is fundamentally the same power.

Secondly, another point should not be overlooked. The demands of irrigation are such that occasional interruptions of power are not of major importance. If this were not so then farming would be impractical since rainfall certainly cannot be controlled within a matter of hours or even days under normal conditions when nature is depended upon as the source of moisture. Hence the availability of power on a 24-hour-a-day basis is not urgently required in irrigation.

Thirdly, there is no good reason why irrigation systems should not be supplied with secondary power during the period it is available and with firm power at other times if it becomes necessary.

An average of power requirements for an irrigation system is not a simple matter at which to arrive due to different methods of operation under varying conditions. However, from a study of many systems actually under operation, it is believed that an average of 1,000 hours of use per season with an average horsepower of 25 is a conservative estimate. Using these figures as a basis an ultimate demand of 42,500 kilowatts is shown for irrigation in this area alone and a consumption of 42,500,000 kilowatt-hour per season. And the Bureau is looking for a market for secondary power. Here it is, made to order. Incidentially, these estimates cover the bottom lands of the Missouri River only. Actually there are many smaller river valleys in the area in which irrigation is equally practical and which, if considered, would materially increase these requirements.

The summation of all of this can be very brief. Here is the opportunity to utilize dump and/or secondary power at a cost the farmer can pay, aiding in fostering a sound working tool in a most vital part of our national economy, an economy in which all must be interested since the production of food and fiber is essential for this Nation to continue as a leader in the industrial field. But if this portion of the economy is much longer left to the fitful winds of chance, no longer will we be able to maintain the enviable position we have attained among nations since the production of this essential food and fiber can hardly be expected to continue if it must be done at a loss to those who produce it.

Gentlemen, look back into the pages of history at other nations when they reached the crossroads. As their agricultural economy went, so went the nation. And history has been known to repeat itself.

There are others in this hearing who will testify as to means by which much of the now so-called dump and secondary power, which I have pointed out is actually firm energy during a considerable portion of the year, can be converted to year-round firm power with all the inherent advantages in connection therewith. Nothing in this testi-

mony should be considered or construed to be in conflict with the others. I am speaking strictly of the dump and secondary power as it exists today. If it is converted into additional firm power, for which the need is apparent, the advantages so obtained will far outweigh additional uses of secondary power, and with this I take no issue.

On the other hand, such secondary power as is available can be economically and feasibly put to use to bolster a sagging agricultural industry. This is vital if America's leadership among nations is to continue.

Fundamentally, the basic purpose of this entire hearing is to bring to your attention the very apparent need for a more logical and business-like approach to the management of the valuable resource constituted by the Missouri River. This resource must no longer be reduced in value by conflicting and personal interests but must be developed to its maximum usefulness for the benefit of the people in the valley. This will not benefit these people or agriculture alone, but will also be in the best interests of the national economy as a whole. I urge your serious consideration of the facts that have, and will be, presented.

Senator MURRAY. Thank you. You have made a very excellent statement there, and raised some very important points.

During the course of your discussion, you referred to irrigation power rates. Do you know what rate the Iowa Public Service Co. charges farmers for irrigation pumping power, for power to run motors?

Mr. WENDEL. It is awfully hard to find out. They will quote a very low rate, but that is contingent upon where the line is relative to the well. If they have to build a line there, their record has been in the past that the farmer will build the line and they will furnish the power, but if they are immediately over the well, or close to it, then they quote a very low rate. It is on a demand.

I am not an engineer, and do not understand all the intricate engineering features that they have in it, but their base rate is 1 cent, what they base their rate on. And then they have to pay a demand charge. So the 1 cent does not cover the cost, of course.

Senator MURRAY. Thank you for your very able statement.

Mr. WENDEL. Mr. Mac Nicoson was to follow me. He has to attend another meeting this morning. He asked that I hand in his statement. He is manager of the L. & O. Cooperative of Rock Rapids, Iowa.

Senator MURRAY. The statement will be printed in the record at this point.

(Mr. Nicoson's prepared paper follows:)

STATEMENT OF MAC R. NICOSON

Mr. Chairman and gentlemen of the committee, my name is Mac R. Nicoson. I am manager of the L. & O. Power Cooperative, a federation of three distribution cooperatives serving about 19,250 people in northwest Iowa and southwest Minnesota with headquarters at Rock Rapids, Iowa.

SCOPE AND PURPOSE

L. & O. Power Cooperative is a transmission cooperative operating at the present time 111 miles of 69,000-volt transmission line serving 7 substations and also wheeling power to the city of Rock Rapids, from the Bureau of Reclamation transmission system. L. & O. Power Cooperative was organized for the purpose

of bringing adequate hydroelectric firm power from the Missouri River to its member cooperatives operating in two northwest Iowa counties and two southwest Minnesota counties.

BACKGROUND

The project was organized in January of 1952, because the plans of the Bureau of Reclamation had been approved to the extent that low-cost Missouri River firm power was to be available. The power cooperative consisted of only two distribution cooperatives in northwest Iowa and in January 1953 the distribution cooperative in southwest Minnesota was accepted as a member of the L. & O. Power Cooperative.

Negotiations with the Bureau of Reclamation were being carried on at this time as to what location we would have to build to in order to be able to receive the hydro firm power. The line was eventually constructed to the Bureau of Reclamation substation near Sioux Falls, S. Dak.

Negotiations were also being carried on with REA for approval to construct the lines and substations. The cooperative knew definitely they would have to build all of the proposed transmission line because in our area there were no adequate transmission lines to deliver power to our load centers. REA approved loans in the amount of $1,030,000 to construct the system and the first construction was started on the first section of the system in July 1953 and completed in November of 1953.

The construction on the second section of line was started in April 1954 and completed July 1954. At that time facilities were ready to receive Bureau of Reclamation power, if power had been available from the Bureau system.

USBR NEGOTIATIONS

In 1951 two of the L. & O. Power Cooperative's members executed power contracts with the Bureau for firm power. These were the first two contracts executed in the State of Iowa. The other member of L. & O. Power Cooperative executed a contract with the Bureau for firm power in 1953. Negotiations were also being carried on with the Bureau on the Wheeling contract and in July 1952 it was signed and approved and in October 1953 was amended to include the third member of the power cooperative.

DATE RIVER POWER TO BE AVAILABLE

It was very necessary that the cooperative receive hydro firm power at the earliest date possible due to the fact the available power sources were inadequate and two of the member cooperatives had been advised by Iowa Electric Light & Power Co. in July 1954 that they had made contractual agreements predicated on the fact that hydro firm power from Missouri Basin would be available for the cooperatives and if any serious generation or line trouble would develop the loads of the cooperative would have to be cut off until repairs could be made.

A number of meetings were held with the Bureau and we were corresponding with Bureau of Reclamation, region 7, officals on power delivery dates. In May 1954 we were advised by letter the substation facilities at Sioux Falls would be completed in June 1954, but no firm power would be available until the spring of 1955. In June 1954 we were again advised subject to reservoir filling schedule winter operating criteria, current low-water year and completion of facilities at Sioux Falls substation, by December 1954 the Bureau might take care of emergency requirements that the cooperative might have if it was possible to do so. In July 1954 we were advised subject to completion of transmission facilities and installation of the third generation unit at Fort Randall firm power could be made available September 1954 to L. & O. Power Cooperative members and the city of Rock Rapids as follows:

Cooperatives	Contract amount	Amount released	Balance of contract
	Kilowatts	*Kilowatts*	*Kilowatts*
Lyon Rural Electric Cooperative	3,300	2,000	1,300
Osceola Electric Cooperative, Inc.	1,750	1,600	150
Southwestern Minnesota Electric Cooperative	4,800	0	4,800
City of Rock Rapids	1,500	1,000	500

In September 1954 we were advised the delivery of firm power to the L. & O. system would be dependent on Fort Randall generation, energizing and testing of the Sioux Falls substation facilities and the present schedule for this work to be done was October 27, 1954. In August 1954 we were advised delivery of firm power would be delayed until October or possibly November even though the third unit at Randall would be ready in September because the Bureau could not energize the Sioux Falls substation on schedule.

POWER DELIVERY DATES

Two of the L. & O. members and the city of Rock Rapids received hydro firm power on December 4, 1954, on a restricted basis and the third member of L. & O. received power on a restricted basis in June 1955. In March 1956 L. & O. Power Cooperative members were advised the balance of the contract amount would be available on April 1, 1956. The delay in receiving power and knowing when the power would be available would not permit the cooperatives to serve notice of their desire to cancel existing power contracts with the power companies. Some of the contracts had a 6 months' cancellation notice. The delay in receiving and knowing when we could receive power cost the member cooperatives of L. & O. Power Cooperative $134,638 additional in power costs. Had all of the firm power been available as soon as the L. & O. Power Cooperative system was energized the additional revenue for the sale of power would have amounted to $91,035 for the Federal Government.

BUREAU POWER SALES, IOWA, 1956

Attached is exhibit A, a report of power sales in Iowa for the year of 1956 and according to the report the nonpreference customers are receiving more of the power than the preference customers and at a lower rate. Had some of this dump power been sold to the preference customers as firm power the revenue for the Federal Government would have been increased but due to large releases of water for navigation the dams are unable to produce the firm power.

REQUIREMENTS OF L. & O. MEMBERS

Shown in exhibit B are the estimated requirements for the L. & O. Power Cooperative 1957 through 1970. The cooperatives presently have firm power contracts totaling 9,850 kilowatts and according to our load estimate this is not adequate to carry us through the year of 1957. We are faced with a power shortage this winter and must negotiate with other power suppliers for the supplemental power at a much higher cost. Present information and estimates from the Bureau are that additional power from the Missouri Basin will be allocated in 1959 but will not be available until Oahe Dam is put in service in late 1961 or 1962. The Bureau cannot give us any indication as to how much our present contracts can be increased. Negotiating contracts for supplemental power during the interim period therefore becomes a problem by not knowing how much more power we can expect to receive from the Bureau.

USBR SERVICE TO MUNICIPALS

The city of Rock Rapids was negotiating with the Bureau for firm power. The power for the city would be wheeled or delivered to them over the L. & O. system and the city would also have to construct approximately 5 miles of 69,000-volt line and substation that would be paid for by the city. The city applied for power in 1948 and in August of 1953 their contract for 1,500 kilowatts of firm power was signed and approved. The line and substation to serve the city from the L. & O. system was completed in October of 1953. The city has not received or signed any contract for secondary power or for dump power. The city of Rock Rapids has been restricted on the firm power they could receive during certain months as shown in exhibit C. Dump power was only available to large users or the private utilities and of course dump power is less expensive than firm or secondary power.

SUMMARY

It appears there are more markets for firm power to preference customers and that a study of the use of the water from the Missouri River basin dams should be made to assure the Federal Government of the most economical operation of the dams. If slack-water navigation was used steady releases of water could be made on the year basis. The result would be an increase of more firm power and more revenue for the Federal Government from the preference customers.

EXHIBIT A.—*Power sales and revenues, Missouri River Basin project, Iowa, calendar year 1956*

	Kilowatt-hour	Amount	Mills per kilowatt-hour
Preference customers:			
REA cooperatives:			
Cherokee County Rural Electric Cooperative	4,614,786	$23,489.64	5.09
Harrison County Rural Electric Cooperative	6,709,356	33,667.78	5.02
Ida County Rural Electric Cooperative	4,417,110	23,963.89	5.43
Lyon Rural Electric Cooperative	10,394,208	52,960.50	5.10
Monona County Rural Electric Cooperative	5,482,908	27,519.66	5.02
Nishnabotna Valley Rural Electric Cooperative	11,580,264	59,016.82	5.10
O'Brien County Rural Electric Cooperative	4,157,928	21,450.43	5.16
Osceola Electric Cooperative	6,875,820	35,191.78	5.12
Plymouth Electric Cooperative	6,489,342	33,935.24	5.23
Sioux Electric Cooperative Association	6,373,368	33,070.38	5.19
South Crawford Rural Electric Cooperative	5,656,410	29,483.08	5.21
Woodbury County Rural Electric Cooperative	4,468,824	22,696.03	5.08
Subtotal, REA cooperatives	77,220,324	396,445.23	5.13
Municipalities:			
Manning (firm)	27,234	126.08	4.63
Onawa (firm)	3,381,300	16,294.07	4.82
Onawa (secondary)	1,088,121	3,380.29	3.11
Primghar (firm)	486,005	2,488.28	5.12
Rock Rapids (firm)	4,321,740	21,814.53	5.05
Sioux Center (firm)	889,827	5,047.22	5.67
Sioux Center (secondary)	1,524,564	4,825.59	3.17
Subtotal, municipalities (firm)	9,106,106	45,770.18	5.03
Subtotal, municipalities (secondary)	2,612,685	8,205.88	3.14
Total, all preference customers (firm)	86,326,430	442,215.41	5.12
Total, all preference customers (secondary)	2,612,685	8,205.88	3.14
Nonpreference customers: Iowa Public Service Co	137,720,040	389,804.05	[1] 2.83

[1] Dump energy available only upon declaration by the United States.

EXHIBIT B.—*Kilowatt-hour and kilowatt demand date for L. & O. members*

Year	Kilowatt-hours	Kilowatt demand	Year	Kilowatt-hours	Kilowatt demand
	Millions			*Millions*	
1957	36.3	10,350	1964	56.2	16,030
1958	37.4	10,680	1965	60.2	17,170
1959	40.0	11,420	1966	64.4	18,380
1960	42.8	12,210	1967	69.0	19,690
1961	45.8	13,170	1968	73.8	21,050
1962	49.0	13,980	1969	79.0	22,550
1963	52.5	14,980	1970	84.5	24,110

EXHIBIT C

WATERTOWN AREA DISPATCHING OFFICE,
Watertown, S. Dak.

CITY OF ROCK RAPIDS,
Rock Rapids, Iowa.

DEAR SIR: Beginning at 12:01 a. m. November 6, 1955, all nonfirm power deliveries from Fort Randall powerplant are to be terminated and firm power deliveries are to be limited. After the time and date indicated above, please limit the power and energy delivered to your system to the contract rate of delivery for firm power that is now in effect, 1,000 kilowatts, and the energy tabulated below:

	Kilowatt-hours
November (25 days)	300,000
December (31 days)	372,000
January (31 days)	372,000
February (29 days)	348,000
March, per day	12,000

1. The energy was calculated using as estimated monthly load factor of 50 percent.

2. We estimate the next navigation season will be resumed sometime in March 1956, at which time most of the restrictions on power deliveries will be lifted.

The supply of kilowatt-hours at Fort Randall will be very limited during these months due to the adverse water conditions this year, but there will be ample peaking kilowatts. Therefore, you may take more than 1,000 kilowatts if you wish, but if you think it will be necessary to take from the Bureau more kilowatt-hours than are stated in the above table, please get in touch with me promptly. If the load factor of 50 percent monthly is lower than you have experienced in past winter months, please advise.

Yours truly,

ORIAN PATTERSON,
Head Dispatcher.

Blind to: L. & O. Cooperative, Rock Rapids, Iowa.

Senator MURRAY. The next witness is Kenneth Holum, a former member of the Missouri Basin Survey Commission.

STATEMENT OF KENNETH HOLUM, GROTON, S. DAK.

Mr. HOLUM. Mr. Chairman, I am Kenneth Holum, a farmer from Groton, S. Dak. In 1952 it was my privilege to serve as a member of the Missouri Basin Survey Commission. Senator Thomas E. Hennings of Missouri was our vice chairman. Senators James E. Murray and Milton Young were members of the Commission as were Congressmen Wayne N. Aspinall, Clifford R. Hope, and James W. Trimble. Other members of the Commission were Fred V. Heinkel, Columbia, Mo.; Dean H. T. Person, Laramie, Wyo., and Harry J. Peterson, St. Paul, Minn.

The Executive order establishing the Commission said in part:

I want them to review the many different kinds of problems that exist in the large area of the basin. I want them to give the country their advice as to the best way to proceed to achieve an orderly, businesslike development of the resources of the basin, a development that places first things first and provides for the greatest resulting benefits for all of the people of the basin and the Nation.

I am here today as a farmer and as a South Dakotan. As a South Dakota farmer my productivity is, in large measure, determined by the amount of water available on my farm during the growing season. In the upper Missouri Basin we never have quite enough water for our crops, for domestic and sanitary purposes, for industrial development, and for all of the things that this most precious resource can do for an area and the people in it.

The Missouri Basin Survey Commission conducted hearings and investigations in all 10 of the Missouri Basin States. I learned quickly that many interests are competing for the limited water supplies that are available and that many of the States in the Missouri Basin had been much more zealous in safeguarding their water rights than had my own State of South Dakota. I became strengthened in my conviction that the upper Missouri Basin can, if we use its limited water wisely and if we develop our other resources efficiently, make a substantially greater contribution to the total national welfare than we are making at the present time.

As briefly as possible, I should like to present to these committees of the United States Senate some of the recommendations of the Mis-

souri Basin Survey Commission. The recommendations which I should like to present represent the unanimous thinking of the commission in January of 1953.

Recognizing that water is a limited resource in the Missouri Basin, the commission gave much time and study to recommendations for its preferential use. The commission recognized that there is no substitute for water in many of its uses. For other uses of water, substitutes are available. The commission recommended preference in the use of water in the following order:

1. Domestic and municipal consumption and pollution control.
2. Irrigation, including ground-water recharge, and industrial consumption.
3. Hydroelectric power.
4. Fish, wildlife, and recreation.
5. Navigation.

These investigations are being conducted, in part at least, in response to a concurrent resolution adopted by the South Dakota Legislature, petitioning the Interior and Public Works Committees of the United States Senate to investigate the use of water in the Missouri Basin in relationship to the O'Mahoney-Millikin amendment to the Flood Control Act of 1944.

The South Dakota Legislature expressed doubt that South Dakota water is currently being managed in such a way as to return benefits to South Dakota consistent with the State's contribution to basin development. I share these doubts. In South Dakota we are alarmed to see so much of the water impounded in our State going downstream to maintain a 9-foot, free-flowing navigation channel on the lower Missouri. The Missouri, with its upper reaches in one of the most water-starved areas of the Nation, is the only major river in the country that is asked to provide the water to a free-flowing navigation channel. Certainly this does not appear to constitute good water management.

A water-management program that conserves more water for winter release, when our power supply problems are critical, will attain substantially more benefits for the upper basin. At the same time we can relieve the winter shortages of water for domestic purposes and pollution abatement for the cities and towns on the main stem of the Missouri downstream. Any shortage of water for industrial purposes downstream must occur during the winter months. These can be alleviated by the same program of sound water conservation.

In my judgment, strict adherence to the provisions of the O'Mahoney-Millikin amendment, together with the establishment of priorities for the use of water comparable to the recommendations of the Missouri Basin Survey Commission, will be in the best interest of both the upstream and downstream States, and the overall national welfare.

The commission of which I was a member pointedly recommended that navigation on the Missouri be given the lowest priority for the use of water. This recommendation was made, in part, because the commission recognized that alternative methods of transportation are available and in part because the commission found the 9-foot free-flowing navigation channel from Sioux City to St. Louis to be an economic waste of both water and public funds.

The commission recognized that the investment in navigation facilities is completely nonreimbursable. With the taxpayers of the Nation carrying the entire cost it becomes doubly important that the project be economically sound. We did not find it to be so. In fact, we found the benefit-cost ratio on the downstream bank stabilization program to be 0.8 to 1, and the benefit-cost ratio on the portion of the main stem dams assigned to navigation by the United States Corps of Army Engineers to be 0.35 to 1.

The commission assigned to its staff the responsibility of making a careful analysis of freight available for both upstream and downstream barge transportation. Careful analyses were made of the costs of the project and the probable benefits to the public. These analyses are presented in chaper I of part IV of the published report. Rather than abuse my privileges before these committees by attempting to restate the information found in the particular chapter, I should prefer to refer the whole chapter to the committee's attention. Permit me, however, to call the attention of the committees to one paragraph found at the upper right corner of page 123:

> The Commission has already pointed out that navigation should have the lowest priority in the use of water in the Missouri Basin. Estimated savings from navigation do not by themselves provide a favorable benefit-cost ratio for the navigation share of the channel stabilization project. This is likewise true of navigation savings assigned to upstream dams. Even if navigation did show a favorable benefit-cost ratio there is a question whether limited public funds should be used for this purpose in view of the available alternative transportation facilities. It therefore is questionable if navigation should be continued as an objective of basin development.

With free-flowing navigation making such a poor showing on the basis of studies conducted by an impartial commission, it is easy to understand why upper basin people are disturbed by water management that dedicates much of our limited water to such a purpose.

In South Dakota we are not necessarily opposed to navigation on the Missouri River. If navigation can be developed in a manner that is sound economically and consistent with good water management, we will support the project enthusiastically. We feel that slack water navigation, which minimizes the consumption of water, deserves careful consideration. We are opposed to river management which siphons the limited water out of our area to support a navigation project of doubtful value. With water urgently needed in the upper basin, and certain to be more urgently needed in the future, for domestic purposes, sanitation, irrigation, industrial development or the generation of hydroelectric power, we view with considerable alarm any program which encourages others to develop priorities and vested interests in the water which we need now and will need even more urgently in the future for the good of the area of its origin and the Nation.

I am here today, and my friends are here from neighboring States in the upper Missouri Basin, because we are sure that it is the intent of the Congress that South Dakota's water shall be used and developed in such a way as to provide maximum benefit to South Dakota.

Since 1944 substantial progress has been made with respect to the construction of structures on the main stem of the river. Fort Randall, Garrison, Fort Peck and Gavins Point are complete or nearing completion; Oahe is well begun and Big Bend should get into construction

immediately. We appreciate the Nation's generosity for its assistance with the development of our resources, yet at the same time we remain convinced that this development is and will be in the total national interest.

With so much construction completed we have had an opportunity to observe the management of our water resources. We have been distressed to observe that substantial amounts of South Dakota water have gone downstream during the summer months, some generating large amounts of dump power to be sold at cut-rate prices to non-preference customers; and other large volumes of water have gone through the outlet canals without any upstream benefits whatsoever, all in an effort to maintain the 9-foot free-flowing navigation channel.

South Dakota always has been a high-cost power area. We never have had enough electric energy and we never have had that energy at a rate which would make possible its maximum usage. Many of the preference customers in South Dakota and the upper Missouri Basin have no source of power other than the Federal system. These preference customers—rural electric and municipalities—must assume a utility responsibility toward their customers, but their power supplier, the Bureau of Reclamation, cannot or will not assume any utility responsibility towards them. Naturally this fact magnifies our interest in the use of the water in the Missouri River Reservoirs.

At the same time our critical power supply problems also direct the attention of South Dakota people to the tremendous reserves of lignite coal in our State and our sister State to the north, which could, if developed on a large scale and properly integrated with the hydroelectric system, generate large blocks of cheap electric energy at reasonable rates.

In conclusion, and returning to the Commission's report, let me say that the Commission was in unanimous agreement that a new agency was urgently needed to coordinate planning for resource development in the basin and to provide managerial control over those resources in the interests of the region and the Nation. We all were disappointed that we could not agree on how the agency should be created.

To emphasize the area of agreement permit me to quote again from the Commission's report, page 246 of the chapter on Federal Organization for Resource Development:

> The heart of the problem is who shall act as water-master—who shall determine when water should be impounded and when water should be released. Inevitably conflicts will arise. One of these has already been foreseen; the continued development of irrigation may result in enough consumption of water to interfere with a flowing navigation channel during droughts. Congress already has settled this problem in the O'Mahoney-Milliken amendment to the 1944 Flood Control Act which gives priority to beneficial consumptive uses, but in the future many other such conflicts may arise. Navigation requires the release of water in the summer, while power demands are normally higher during the winter months. The development of irrigation may eventually consume enough water to curtail the production of hydroelectric power. A single organization is needed to enforce the priorities in water use which the Commission has recommended and coordinate water releases accordingly. Unilateral decision by a single subordinate agency should not control.

If the members of these committees will initiate whatever action is necessary to safeguard the precious water of the upper Missouri Basin for the maximum beneficial use of upstream people, and if you

will give your serious consideration to placing the management of these resources in the hands of a single agency that will look to the broad public interest in the region and the Nation, rather than continuing to entrust the management of these resources to a multiplicity of agencies with diverse and conflicting interests, I am certain that you can substantially safeguard the expenditure of public funds while at the same time you will be helping us to achieve the greatest possible benefit from the development of our resources.

The recommendations of the Missouri Basin Survey Commission, which I have quoted, were as I said earlier, unanimous recommendations. They were determined with the aid of a competent staff and after careful consideration by the members of the Commission.

Your consideration of these recommendations will be deeply appreciated by the citizens of the basin. We are particularly hopeful that you will take whatever action you deem necessary to assure the proper and beneficial use of the limited water in our area of the Nation. The priorities for the use of water outlined by the Missouri Basin Survey Commission represent careful consideration of the problems of our area of the Nation. These recommendations for priorities were:

1. Domestic and municipal consumption and pollution control.
2. Irrigation, including ground water recharge, and industrial consumption.
3. Hydroelectric power.
4. Fish, wildlife and recreation.
5. Navigation.

Thank you. That concludes my testimony.

I would just like to make this one further comment, if I may. I was interested to sit here in the committee hearing room yesterday afternoon, and to hear the representatives of various chambers of commerce downstream express unanimously, I believe, their conviction that their greatest need for the development of the Missouri River was flood control and flood protection. I would like to call these committees' attention to the fact that South Dakota, North Dakota, Montana, and the upstream States have contributed generously of their bottom lands to provide the storage for the waters that these cities downstream want impounded. So I think we have made a substantial contribution to their welfare by providing the storage facilities for the flood waters that they want impounded upstream. I thank you, Mr. Chairman.

Senator MURRAY. Thank you very much, Mr. Holum. You have made a very fine statement here this morning, and have presented points of great importance.

Do you feel that it would be important to have a power Administrator established to undertake to regulate these matters rather than to have several conflicting agencies using their judgment as to what should be done?

Mr. HOLUM. I am sure you recall, Mr. Chairman, that when we conducted our hearings in all 10 of the Basin States and listened to representatives of every walk of life from each of those 10 States, that we found almost unanimous agreement among the people in the basin that they wanted their resources developed by one agency, so that they could go to one place and get responsible answers. They did not want to have to do what Mr. Hanlon told you yesterday, go first to Huron,

then to Billings, then to Washington, then to Billings and back to Denver. They want to go to one place to an agency with responsibility in the basin and get the answers to their questions.

They were not in agreement as to how that agency should be created, but I think I can say that they were in almost unanimous agreement that they wanted that agency. I could say as far as I am concerned that that just strengthened my own conviction that we need that kind of an agency in the Missouri Basin if we are going to get good development and good use of our water.

Senator MURRAY. I think that is a logical conclusion to arrive at. I am sure we ought to be able to work out a program of that kind. Thank you very much for your statement.

Senator CASE. Mr. Chairman, I would like to say for the record in view of the fact that I have just come in, and have been at a meeting of the Committee on Public Works, that I regret I could not be here to hear Mr. Holum's statement. I shall read it in the record. I think many people may be aware that Mr. Holum gave me a really bad scare last fall. Nevertheless, we are friends, and I am pleased to have him here to appear before the committee.

Senator MURRAY. We have a great admiration for you both, Senator Case.

Mr. HOLUM. Thank you.

Senator MURRAY. Do you wish to make any further comment, Senator?

Senator CASE. No, Mr. Chairman. We had a special meeting of the Public Works Committee at 9:30 this morning, which we were assured would be over before this, but it was just concluded. It was an executive session and I had to be there.

Senator MURRAY. The next witness will be Charles H. Mahoney, Montana State Rural Electrification Association, Jordan, Mont.

STATEMENT OF CHARLES H. MAHONEY, PRESIDENT, MONTANA STATE RURAL ELECTRIFICATION ASSOCIATION

Mr. MAHONEY. Mr. Chairman, with your permission and Senator Case's permission, may I stand at the map?

My name is Charles H. Mahoney. I am president of the Montana Transmission & Generating Cooperative, also a member of the McCone Electric Cooperative. I come here this morning to talk to you gentlemen, and I would like to answer one thing that was stated here yesterday by some gentlemen from the lower basin, questioning, maybe, our right to petition this Congress for an investigation into the water handling in the Missouri Basin.

The Montana Legislature, for the benefit of the committee, debates every resolution of memorial to Congress more than we debate anything else. We become national statesmen at that time. Any of you other members of the legislature will realize that. This resolution practically went through without debate. There were no votes against it in the senate in the State of Montana.

Secondly, our Governor, Governor Aronson, signed it and he knew what he was doing when he signed it. He is a very thorough and distinguished Governor. So we feel in Montana that if we don't like something we have a right of petition to our Congress.

We in Montana feel that way, Mr. Chairman, that you make the laws and the rules. If you are satisfied with the program as being administered, we have no objections. That is your province. Montana is not going to secede from the Union over this, and not going to call out the National Guard to keep the water within the State. We want it worked in harmony with all the States, as much as anybody, and we feel that our Congress is the one for our place of petition.

Now, gentlemen, my home is within 12 miles of this tip of the lake. In 1933, when Fort Peck Dam was authorized, and this is my county, we lost more than any county in the State of Montana. You took our bottom lands out on the southern edge. We were told at the time that this was necessary for flood control. It was long before the power question arose. When I came back from the service in 1947, they had formed an electric cooperative at the circle. I immediately started trying to get power into my area. Thanks to the Rural Electrification Administration, which this Congress created, I have my county, in a sparsely settled area, practically 90 percent covered with rural electricity.

Also, thanks to the Congress of the United States and their farsightedness, I now have a dial telephone that I can pick up and have my wife on the phone in a few minutes. I wish to congratulate Congress very much on those two fine programs.

This point on the map is Glasgow, with Fort Peck Dam. We, in this area, who have 9 cooperatives in Montana and 6 cooperatives in North Dakota right under the great Fort Peck, are forced to hunt someplace else for power.

This group met with the Bureau of Reclamation at Billings on the 11th day of April, to discuss additional power from 1958 through 1962. At that time we were told, first, at the hearing when we were discussing peaks, that we have no problem in this area on peaks. All we are short of is energy.

For the benefit of the committee, I believe it was 2 years ago you authorized the second powerhouse at Fort Peck. We were also told at the hearing that they were going to use the second powerhouse for peaking only. You have plenty of peaking capacity, by their statements, in the area, but the second powerhouse is going to be used for peaking.

We in Montana would like to know this, gentlemen: There is less water in this area, including the big dams today, than there was when Fort Peck was full in 1951. We would like to know the reason why.

Senator CASE. Would you repeat that statement, please?

Mr. MAHONEY. There is less water stored in this area, including all the dams today, than there was in Fort Peck alone in 1951. That was the statement that was made here yesterday by a man here at the hearing.

Second, gentlemen, here is the capacity of Fort Peck; 19 million acre-feet of water. As of last Monday, at 9:30 o'clock, you had 6,400,000 acre-feet of water in Fort Peck Dam, approximately one-third full.

To make maximum power at Fort Peck Dam takes 13 million acre-feet. We have no fight with the lower basin. We are perfectly willing that they use the 6 million acre-feet above the 13 million for their chance of using water for downstream operations.

Senator CASE. Was there any flood-control storage reserve in the planning on Fort Peck?

Mr. MAHONEY. I believe there was, Senator.

Senator CASE. If you had 13 million for power and 6 million for downstream, where would you have your flood-control storage?

Mr. MAHONEY. The 6 million would be above your maximum of power, necessary to create maximum power at Fort Peck. Thirteen million acre-feet will create maximum power. You have then 6 million acre-feet above. That is one thing we would like to know in Montana; why Fort Peck is down to 6,400,000 acre-feet. The Bureau told us in Billings that they did not expect Fort Peck to raise this year. In fairness to the Bureau, they are going to place every bit of that water through for electricity.

Another thing we would like to know, and I have seen a set of figures on it, but I do not have them, is how much water in the past number of years has gone by not making any power.

Senator CASE. Are you getting as much power as was allocated by the Bureau of Reclamation?

Mr. MAHONEY. Senator, I do not know how much they originally set up, but at the present time we can make 40 megawatts of power with the present head of water, versus 70 megawatts when the dam is up to 13 million acre-feet.

Senator CASE. Maybe I did not ask the question the way I should have to get the information. Is the Bureau of Reclamation delivering to you as much power as was promised?

Mr. MAHONEY. Senator, we have in the past, up until the time of the new marketing criteria, which, I believe, was argued very much here 2 or 3 years ago, only contracted on a year-to-year basis ahead, using up our supply. We have at the present time in our cooperatives contracted for enough through 1958. The amount needed for our next period of operation, we have been told by the Bureau, they will attempt to get for us, but the last thing they told our cooperative was to go out and hunt other places for power as they were not assured that they could give us the additional 10,000 kilowatts that the 6 cooperatives in North Dakota and the 9 in Montana need.

Senator CASE. Do you get any power from Hungry Horse?

Mr. MAHONEY. No, Senator. I will take that up now. I figured on covering that in just a second, on the power grid in this area.

Here is what I would like to go into: Recreation has been completely ruined in Montana on Fort Peck Dam. Going behind the mud flats, which is way out, our recreation is over, until we get more water in Fort Peck Dam. Furthermore, in order to be fair to the Government, they have leased all this land which they had to purchase in addition to the edges, taking up these complete places when they bought this in 1933. This has become a grand wallow for livestock under the present conditions.

A year ago Montana had a very heavy snow pack in the mountains. Fort Peck did not rise. There is one thing I would like to call to the attention of the committee.

There is a little bit of water coming out of Canada. The only place that is furnished in this part, above the mouth, comes out of Yellowstone Park and the rest of it rises in the State of Montana. This amount comes and rises in our State.

Now, gentlemen, here is what has happened. We want you to find out the reason. The bus bar has been split right here. There are two high-head generators on the east side of the bus bar. On the other side there is one low-head generator with a capacity of 15,000 kilowatts of power. Here is a cooperative that is fed as a preference customer; up at Opheim is another cooperative fed as a preference customer. Here is Havre, fed as a preference customer, Hill Electric, and also Shelby and Cut Bank.

Those are your entire customers on the west bus of Fort Peck. All of the rest of the cooperatives are fed from Montana Power, not through wheeling but direct. These cooperatives are using 3,400 kilowatts of power, these two, Glasgow and Opheim. I do not know what Glacier, Havre, or Shelby use, but I am confident that neither one of them are using any more than our cooperative at Circle is using, and that is approximately 4,000 kilowatts.

I would guess the 15,000 kilowatt generator would furnish every bit of preference power that is necessary for these customers. What has never come into this discussion any place is this Canyon Ferry. Under the present program it is a dam of the Montana Power Co. The Federal Government owns a transmission line from Fort Peck to Rainbow, which was built at the time of the construction of the Fort Peck Dam. I do not know what year it was, but I believe it was about 1950, the Congress appropriated money for a transmission line cross there. And an agreement was reached before the line was constructed to use Montana Power facilities on the transmission line. I have no quarrel with the Montana Power.

Senator CASE. That is where to where?

Mr. MAHONEY. From Canyon Ferry to Great Falls. At that dam, you had 50,000 kilowatts of firm power until last fall, at Canyon Ferry. Last fall, the Montana Power Co. contracted 25,000 kilowatts of that power as firm power. I have at the present time 25,000 kilowatts of firm power going to the Montana Power Co. at dump, at Canyon. This came from the Bureau or Reclamation.

We split the bus here, gentlemen, at Fort Peck, putting in the low-head generator which can run at maximum capacity, which is low head, and these 5 cooperatives, Cut Bank, Shelby, Havre, Glasgow, and Opheim aren't using any more than that 15,000.

We are now told by the Bureau that we in this area must look to someplace else for a power supply. Montana-Dakota is putting in a steam plant, right out of Sidney. My people for the life of them can not see why we should go out and purchase steam power which will be higher, right under Fort Peck, when there are 25,000 kilowatts of firm power laying between Canyon Ferry and Fort Peck that is surplus.

Senator CASE. What is your mill rate there for Bureau power?

Mr. MAHONEY. 5.5 mills.

Senator CASE. What will the steam power be at Sidney?

Mr. MAHONEY. The Montana-Dakota utility company have told us so far that they do not believe they will have any capacity for us. But they have suggested that we go in and build a plant in conjunction with them, like the Dakota Electric has, and the closest that we have been able to figure out, without going into it with as much detail as we should, this power will cost us between 9 and 10 mills. For the benefit

of the committee, I have an awful time explaining to my people, when here is the water, here is where it falls, and we have to go into steam power, when there is this surplus from Canyon Ferry. The Bureau at Billings, which has been very fair to us, said one of the bottlenecks was the transmission line at Canyon Ferry, that they could not feed it across.

Senator CASE. Was Canyon Ferry a Bureau of Reclamation Dam or an Army Engineer dam?

Mr. MAHONEY. I would not know, sir, all I know is that there is a dam there. I believe it is Bureau.

Senator CASE. It was a Bureau dam and Fort Peck is an Army dam.

Mr. MAHONEY. That is right. We would like to know in Montana if we can have this committee find out if they can dump Fort Peck and can they dump Canyon. It is still in the Missouri Basin.

Secondly, gentlemen, why should the division of power be right through here? I will state this for the record: One of these is Montana Power territory and the other is MBU territory on the east. We wonder if the bus has been split for the benefit of the power companies in place of the Bureau for the overall program.

Senator CASE. Does Bonneville come into western Montana?

Mr. MAHONEY. Bonneville comes only down into an area right in here, which is the east side, and this, I might state for the benefit of the committee, is in the Vigilante Dillon. I might state the reason this came up, Senator, digressing just a second: One time Montana had a resolution in that was going to take and divide the power so that you could not take power from the east side to the west side of the Continental Divide. There happened to be a good friend of mine serving in the Senate at that time, and I asked him where his cooperative was going to get their power.

Senator CASE. You understand, in asking these questions, I am simply trying to bring out the facts. I understand there was some division of territory some time ago which involved Bonneville.

Mr. MAHONEY. This whole area with the Montana Power ties through. They tie both sides to Bonneville and to the Missouri Basin side, through the Montana Power tie-in only, Senator. As you well remember, the last end of the line is at Great Falls, as the Bureau-owned line. I do not want to take any more time of the committee than is necessary. I would like to sum up just a few points that we would like to have the Senate Interior and Insular Affairs and Public Works Committees check into for us in Montana. Let us say that we are willing—and Montana is perfectly willing—to give you and let you use the 6 million acre-feet, which is dumped above our necessary 13 million for maximum power. That gives you a third of the dam. If you have got into problems like the Saturday Evening Post stated, way down here in New Orleans, we are even willing to give you some more. We do not want any people to suffer. We are perfectly willing for all of this country down here to the south to have their shipping. But what would have happened if we had to drain Fort Peck down from 19 million to 6 million acre-feet during the last years? We would have had no Fort Peck and there would have been absolutely no shipping.

So let's check on the water, let's check on the bus bar, why the bus bar is split here, why it is that there are 13,000 kilowatts generating on

the west but, where there are only 5 preference customers, and the 5 of them are not using any more than 15,000, why we cannot get the 25,000 made available to us in eastern Montana that are now going as dump power to the Montana Power Co. over into our eastern area.

Are there any questions?

If not, that concludes my statement.

Senator CASE. Mr. Chairman, I assume that both the Bureau of Reclamation and the Corps of Engineers will be called upon to answer questions like this and other questions that may arise during the hearings.

Senator MURRAY. That is correct.

If there are no questions, thank you very much for your statement, Mr. Mahoney. I think you have brought out some fine points for our consideration.

Mr. MAHONEY. Thank you.

Senator MURRAY. The next witness will be John F. Lindley, from Chamberlain, S. Dak., their chamber of commerce.

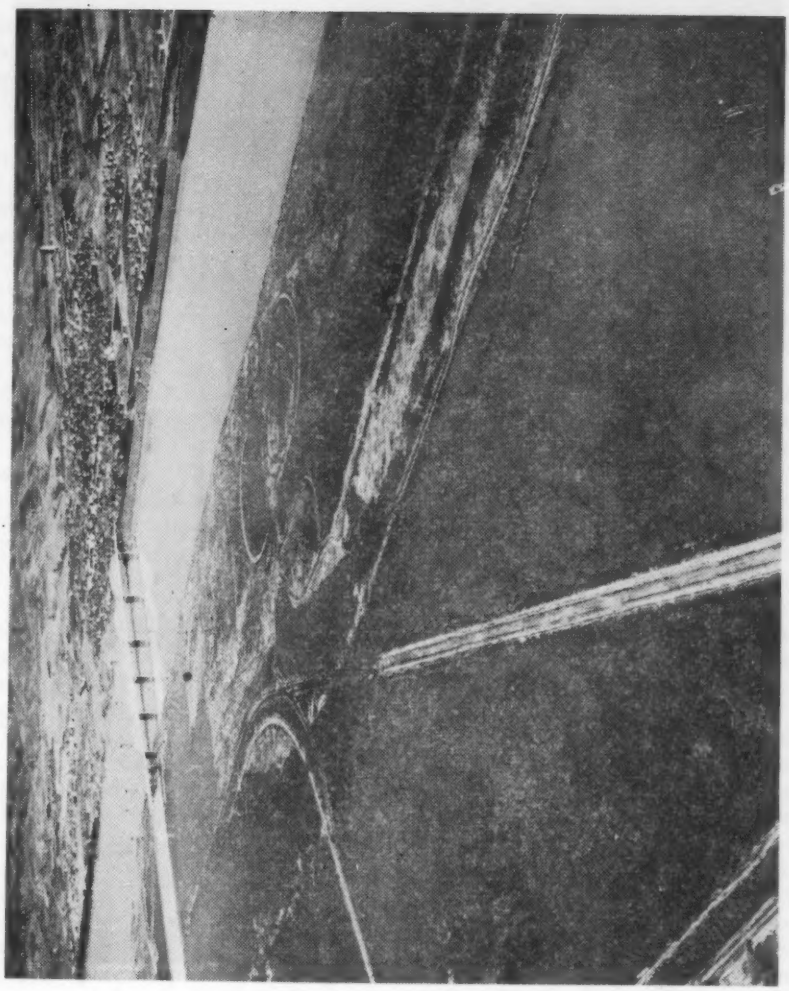
STATEMENT OF JOHN F. LINDLEY, REPRESENTING CHAMBER OF COMMERCE OF THE CITY OF CHAMBERLAIN, S. DAK.

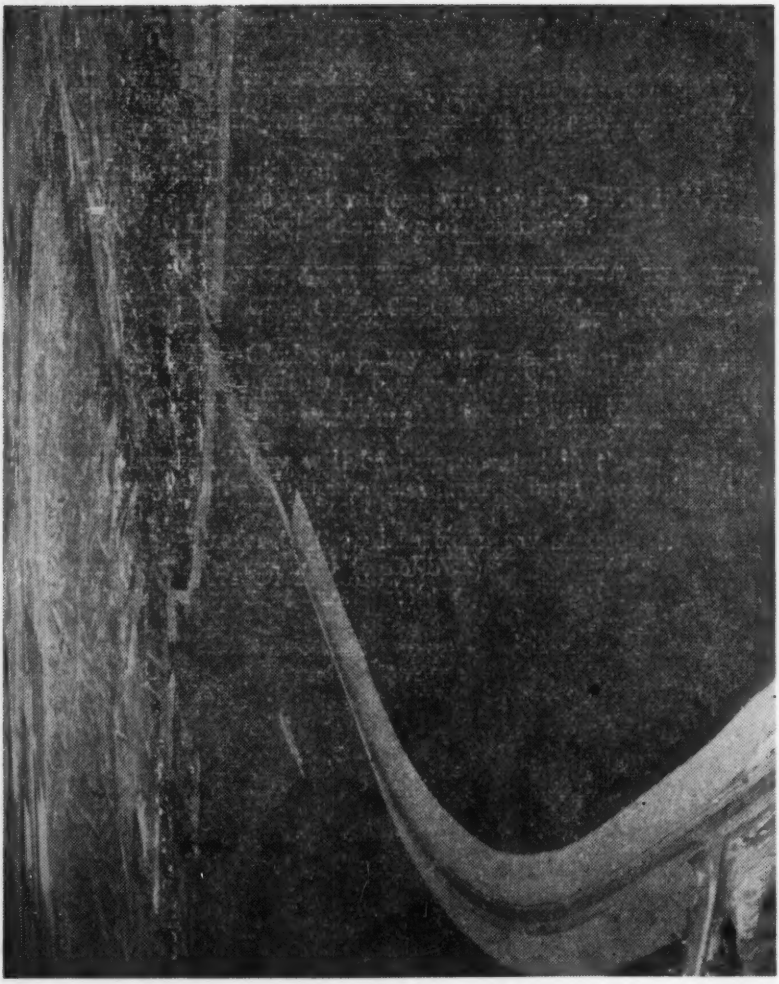
Mr. LINDLEY. Mr. Chairman, my name is John F. Lindley, of Chamberlain. I have with me 5 copies of 2 different photographs made of the Chamberlain, S. Dak., area that I would like to file with these committees.

Senator MURRAY. They will be incorporated in the record. I do not believe they can be duplicated as pictures, but they will be carried in the record.

Mr. LINDLEY. I refer to the pictures in my statement.

(The photographs referred to follow:)





Mr. LINDLEY. I am an attorney living in the city of Chamberlain, S. Dak. I appear before you on behalf of the city of Chamberlain. We have introduced copies of resolutions by both the city commission and the community club asking that the water level at Fort Randall Reservoir be maintained at a level of not less than 1,345 feet. We have taken several photographs, two of which I have filed along with this statement.

One was taken on Monday afternoon of this week, the 29th of April 1957, when the water level was at 1,348 feet, according to the reading taken that day at Chamberlain. The other picture was taken on another day, showing the water level at approximately 1,341, during the year 1955 or 1956.

The purpose of these pictures is twofold. They will demonstrate to the members of these committees the possibilities for public recreation, including fishing, boating, and other water sports for the people of central South Dakota when the water level is up, on one hand, and the lack of such possibilities when the water level is pulled down for use downstream, on the other hand.

The pictures should also aid the committees to more fully grasp our problem created by a low water level. They show clearly that water in small shallow pools will tend to become stagnant, begin to make unpleasant odors, provide a breeding place for mosquitoes, and in general create undesirable conditions in our community.

Chamberlain had a population of 1,912 persons, according to the 1950 census. It is estimated to be approximately 2,250 or a little more at the present time. We are located on U. S. Highway 16, which is the site of the freeway to be built across the State and is the only point on an east-west highway, providing access to Fort Randall Reservoir, except for the highway crossing the dam itself, which is about 65 miles downstream on a straight line, being considerably farther either by water or highway.

When the water level is up, as it appears in the picture just taken, access to the reservoir is provided to people all over the central section of the State. When it is drawn down as it appears in the older picture, or to a level even below that, which is frequently the case, recreational facilities are practically eliminated.

May I point out to the distinguished Senators that the area outlined on the older picture was formerly an island. A bridge crossed the east channel. The old pillars still mark its location. There was a railroad bridge located to the north. On the west channel, a dike was constructed for the railroad and another for the highway. The island was covered with trees and developed into a popular picnic and camping ground for the entire area. When the engineers first proposed Fort Randall Dam, they explained to Chamberlain that, although the trees and the island would be lost through inundation, they would have a lake in place of the island for recreational purposes. The announced levels indicated the operating level of the dam would fluctuate between 1,350 and 1,365 feet. Flood stage would be 1,375 maximum and the minimum, or limit of drawdown, would be 1,320 feet.

We were assured that we could anticipate a 1,350- to 1,365-foot level except on very rare occasions, which would occur in the fall and winter after the mosquito season was past. The highest this water

level has reached since the closing of the dam was 1,348 feet on the date the picture I have referred to was taken.

We believe that we have the right to expect that the water level should be maintained at a minimum of 1,345 feet during the summer and fall months, and we would prefer 1,350 as a minimum. If there is not sufficient water to provide a 9-foot channel downstream and still leave water to keep the the old island covered during the summer and fall months, then in our opinion the amount of water used downstream should be be diminished, until such time as there has been additional water stored up to provide it for them, without exposing us to the discomfort and actually unhealthy conditions that have beeen thrust upon us in the way the water levels have been arbitrarily mishandled since the closing of the dam.

We feel that to continue to take this water away for purposes of navigation deprives us of beneficial use of that water, as set forth in the O'Mahoney-Millikin amendment to the Flood Control Act of 1944. We are only a little over 2,000 people who are most adversely affected by this violation of the law, but we feel that we are entitled to its protection.

We appreciate the opportunity to appear before these committees and state our objections to the continued excessive use of Missouri River water by the navigation interests downstream.

Thank you.

Senator MURRAY. Are there any questions?

Senator CASE. I would like to ask, Mr. Lindley, what have the engineers told you as the reason for this excessive drawdown?

Mr. LINDLEY. One difficulty, Senator, and I may be avoiding immediately a direct answer, has been pointed out by witnesses early this morning, the split in authority, in not having one head to this business out there, leaves us at times having to write to our Senators, as you know, and at other times trying to contact the office at Omaha. We get different answers from different places. The only answer that seems to make sense so far is that they have not had as much water as they needed for everybody's use. In order to supply enough downstream for navigation, they have been forced to draw down below the levels that they assured us would have been maintained.

Senator CASE. The current level is the best it ever has been?

Mr. LINDLEY. That is correct, Senator. We would not be complaining if this was the low point rather than it being the high point of water storage.

Senator CASE. The question, I think, will be submitted to the Corps of Engineeers, and we will ask for a direct answer on the question that you have raised.

Mr. LINDLEY. We would certainly appreciate it. I think the Senators can see, in looking at the picture, when fish would start to die in the shallow water there, that it is not a very pleasant place to have your home.

Thank you, Senators.

Senator MURRAY. Thank you very much.

I am advised that the next three witnesses, Mr. Stiening, Mr. Young, and Mr. Bergman, of Valley City, N. Dak., will appear together, and thus help to shorten these hearings.

Will you gentlemen all come forward?

Representative KNUTSON. Mr. Chairman, may I introduce a spokesman, a constitutent of mine from the Ninth District of Minnesota.

Mr. Stiening is going to present the testimony. I think he has a very pertinent statement to make, Mr. Chairman. Conditions are such that we feel the case is justified in bringing it before this committee and receiving immediate consideration.

Thank you.

STATEMENT OF HENRY C. STIENING, CHAIRMAN, PUBLIC SERVICE COMMISSION, MOORHEAD, MINN., ACCOMPANIED BY JOSEPH YOUNG, SUPERINTENDENT, WATER AND LIGHT DEPARTMENT, MOORHEAD, MINN.

Mr. STIENING. My name is Henry C. Stiening. I live in Moorhead, Minn. I am a lawyer by profession, but I speak today as former mayor of Moorhead, Minn., and present chairman of the Public Service Commission. I have with me Joe Young, our superintendent of the water and light department of that public service commission, who can answer any technical questions with reference to electrical power with which I am not so familiar.

I feel that we should bring our special problem to you by way of pinpointing what is happening to communities by reason of the pursuing of present policies in a river that is 200 miles west of us. The Missouri River flows between Bismarck and Mandan, and that is the closest point that it gets to the Moorhead, I believe. That is 200 miles away. Our difficulty is growing pains. From 1870 to 1940 we increased in population to 9,400, and in 1950 in the census, we discovered that we had 14,700 people, or an increase of 56 percent. Those are round figures. Immediately we were short of water, short of electricity, short of sewage facilities, short of everything. All of this came on by reason of a tremendous influx of people immediately after the close of the Second World War. We got busy and tried to eliminate some of our difficulties by getting a 6,000 kilowatt turbine, a steam turbine. We have our own plant, our own municipal plant, and it is a steam plant. In 1952 we put in this 6,000-kilowatt turbine. We thought we had our difficulties licked and then we discovered that the tremendous influx of people into our town was continuing. Today, not only by computation from the number of meters that we have out, but by count made by our chamber of commerce, we have approximately 21,000 people now. What we will have in 1960 we do not know. Then along came the completion of the Garrison Dam. We immediately contacted the Bureau of Reclamation in order to get electricity. As a result of negotiations we have a contract with the Bureau of Reclamation giving us 14,000 kilowatts of firm power. We are not getting that yet, and I will cover that situation briefly.

Last fall, along about October, after continued negotiations, the Bureau told us that we could get peaking power, and we were furnished, I believe, 2,000 kilowatts. Mr. Young would know about this a little better than I. We were charged a demand charge, I believe, of $2,500 a month on that. That went along until a month or two ago when the Bureau advised us that they would start giving us secondary power. I might say that when we got the peaking power

we entered a special contract which in no way did away with the original contract. We entered this second contract for peaking power to be followed by secondary power, and eventually we would go to the original contract on the firm power when available.

As I said, within the last 60 days we got the secondary power. Both peaking power and secondary power is a will-o'-the-wisp. Today you may have it, tomorrow you haven't got it. We in Moorhead are in a position where we must have something we can rely on and be assured that it will be there from day to day, day and night. That assurance we do not have on this secondary power. In fact, Mr. Young, our superintendent, reports to us that unless there is water in Garrison Dam, we may be cut off from secondary power entirely, and then we will again have to rely on our own equipment. With our own equipment we can generate 14,000 kilowatts, in our own plant. But a lot of our equipment is probably 40 or 50 years old. It is not reliable any more. We cannot depend on it. The Northern States Power Co. is there, and we had a contract with them for 2,500 kilowatts that has been eliminated within the last couple of months because they felt they could not take care of us.

Senator CASE. Mr. Stiening, when you use the word "our," you are referring to the municipal plant at Moorhead?

Mr. STIENING. Yes; absolutely. Within the last 3 weeks we, and when I say "we" I mean our commission, our public service commission, we sent Mr. Young, our superintendent, and our city attorney, to Billings, Mont., which is the headquarters office of the Bureau, to see if we could not get some firm power, because we had heard that Valley City and some other cities now had firm power, because we are in dire need of some form of firm power in case one of our boilers blows out, which has happened. It happened 2 years ago and we were in a very bad position for about 10 days.

Luckily, the Northern States Power Co. was able to help us out on a special basis.

These two men went out to Billings, and when they came back we had a committee meeting. Their report was substantially that they had been informed that the Bureau did not know when they could give us firm power because of the water situation. That was the first thing that we knew that there was going to be water trouble. Since then we have heard a lot of it, and especially yesterday and today. We are not blaming anyone. We are not here to criticize. But we want to lay this matter before you to show you what a situation that has developed on the Missouri River with reference to holding water means to one community of 21,000 people. That is why we are here.

In fact, I want to say to you gentlemen that in coming to Washington we came by way of New York to see some engineers with reference to getting data on a possible installation of a gas turbine. The turbine that we have in mind is either 15,000 or 20,000 kilowatts. We feel that by 1960 we will not only use up the 14,000 kilowatts that we have a contract for with the Bureau, but we will need additional power.

Governor Freeman wrote us a letter not too long ago asking us if we could use additional power if it was available. We then told him that we would take 6,000 additional kilowatts, looking into the future, so that we would be taking 20,000 kilowatts of Government power in all.

With the growth of our town, I am satisfied we can use all of the power before 1965 or 1970. Since we are growing so fast, we have to keep looking into the future in our town. We cannot get away from it. Yesterday the question was asked, I believe by yourself, Mr. Chairman, of a witness as to whom he thought should set the policy. I was a member of the Minnesota State Senate for 12 years, and I have absolute confidence in the elected officials. I feel that here in the Congress of the United States is the place to set the policy. I am satisfied that the Corps of Army Engineers and the Bureau of Reclamation will go along with your wishes if you express those wishes to them.

We had no trouble with State departments while I was in the Minnesota State Legislature.

That is my statement. I am very happy to have had you take the time to listen to us.

Senator MURRAY. Have you any questions, Senator?

Senator CASE. I have 1 or 2.

Mr. LINDLEY. Before you ask any questions, Senator, may I also for the record give my thanks to Representative Coya Knutson, from my district, who has so kindly come over here to sit in on this hearing.

Senator CASE. Mr. Chairman, I am sure we are pleased to have the statement of this gentleman, and also to have Mrs. Knutson with us this morning.

Mr. Stiening, is any part of the State of Minnesota west of the 98th meridian, do you know?

Mr. STEINING. I think it is all west. We looked at a map this morning, and it seems to me——

Mr. YOUNG. No. We are not west. We are east.

Mr. STIENING. I am sorry. I got the question wrong. We are east. I think the 98th meridian approximately runs through Valley City, which is 80 miles west of us.

Senator CASE. Yesterday we heard some varying interpretations given of the so-called O'Mahoney-Milliken amendment, and under one interpretation it would cover electrical power and under another it would not. But if it should cover electrical power, it would say that the use of water for navigation should not interfere with the use of that water for beneficial consumptive use in States which lie wholly or partly west of the 98th meridian. That would not extend protection to Minnesota nor to Iowa, if that interpretation were acceptable.

Mr. STEINING. That is one of our big worries, after listening here yesterday.

Mr. YOUNG. I brought that to Mr. Stiening's attention this morning. I thought that was really serious, as far as we are concerned. We have depended a lot, the community has depended a lot, on getting this Garrison power. It takes a considerable length of time to plan and install turbines in a municipality; about 2 years. We really think we are in a bad way because we do not get some firm power. The city would be satisfied with just a fraction of what they were promised the way they are talking now, they do not have the water and they cannot promise any firm power. They are charging us more now for this peaking power than they are for the firm power. Then they are turning around and giving all of this dump power to these other companies for just a tiny fraction of what they are asking us for firm power that they will not give us.

Senator CASE. I think, Mr. Chairman, that this question of the disposal of the dump power, and the rates at which it is disposed of is a question that the committee should go into.

Senator MURRAY. That is correct, Senator Case. It is of very vital importance. We will have to go into that very carefully.

Mr. YOUNG. Here is the deal. It just does not seem to make sense. The Bureau of Reclamation personnel, they are just wonderful to deal with, and they cooperate with us. The line was not built, the substation was not built. I wrote and said "Can you put the current over there at reduced voltage and get us some service?" Because we were in a precarious position. They did that. They brought in a substation; we paid for the work and all of that. We were glad to do it, and they said "Here, we will give you peaking power."

Peaking power means that you will pay the demand charge, you use the energy, and then you return that energy to them. You either return it over your own facilities or over other facilities. It happened we made an arrangement with the Central Power Cooperative to return this energy to them. The idea is on the face of it that they wanted to conserve that water in back of the dam, or else why would they want the energy back in the lines? Then they charged us $1.25, to begin with, instead of 75 cents, which is a considerable difference.

Here we go to all the trouble to put that energy in the line, in order to conserve the water, and now they say they are running the water down the river to float some barges. They do not get any money out of that, do they?

Mr. STIENING. Explain, Mr. Young, about us having to continue to pay the $2,500. I probably did not make that clear.

Mr. YOUNG. We had that discussion with them. Then they came around and said "Now, you have to pay that demand charge right straight through until firm power is available."

That is $2,500 a month. The peaking power is not available now, because they got secondary energy on the line. It would be silly to put energy into that line when they are just dumping water. So that is a discussion we have had with them on the interpretation of the contract. They are having us continue to pay that charge. What we believe is that we should get a portion of our firm power and then, if they have secondary power available, we will be glad to take some of that, too.

Senator CASE. You apparently also have this problem of dealing with 2 agencies, or at least the decisions of 2 agencies affecting your problem.

Mr. YOUNG. That is right, Mr. Senator. But I tell you, we have dealt practically all the time with the Bureau of Reclamation and nobody else.

Senator CASE. The Bureau of Reclamation is not the agency that releases water for navigation.

Mr. YOUNG. That is what I understand. I understand that the Army has the authority over the release of water. I think it is really important and affects the economics of our system adversely. We were wondering when we heard about this water being released, and that is why we came down here to see if there wasn't something that could be done about it. If it is not necessary, we would certainly like to get a portion of the firm power we are asking for.

Senator CASE. Perhaps this is unsolicited, but in view of the problems that other areas are having about power, I think you were well advised to come down by way of New York and get such information as you could about other sources.

Mr. YOUNG. We really are quite worried about it. We thought this thing was all set up. You know, the Bureau of Reclamation men have been coming in to our town for the last 10 years, telling us about this power to be available, and telling us our preference status and one thing and another. We thought the whole thing was ready to go but it evidently is not.

Senator MURRAY. Thank you for your statement.

Mr. Bergman, do you wish to make any comments?

STATEMENT OF OSCAR BERGMAN, VALLEY CITY, N. DAK.

Mr. BERGMAN. I would like to comment on the cooperation between the Bureau of Reclamation and the Corps of Engineers. We have been receiving power from the Bureau for approximately 14 months. We find that the Corps of Engineers apparently controls the releases, whereas the Bureau of Reclamation are the people that, let us say, allocate the power to the various communities. It just so happened last winter on the Oahe Dam project they continued to work, during the winter months, and the Corps of Engineers did not have any power for the contractors to try to push the tunnels through.

It wound up we furnished power to Oahe from Valley City, N. D., which is approximately 500 miles. I feel that the power must have been available; it must have been. The small additional releases that would be necessary to supply 800-kilowatt power to Oahe certainly should not have had to come from Valley City.

Senator MURRAY. Does that conclude your statement?

Mr. BERGMAN. Yes.

Senator CASE. How did that power come from Valley City? What was the source of the power?

Mr. BERGMAN. Actually, we were firmed up with 2,500 kilowatts of the Bureau of Reclamation. So it was more or less of an interchange of power. We dropped off and started to generate more power in our plant and interchanged our power with Bureau power. Actually, Bureau power flowed to Oahe.

Senator CASE. The 1944 act provides, however, that it is only power which is not needed for the operation of the works that the Secretary of the Army or War Department delivers to the Bureau of Reclamation or to the Department of the Interior for resale. I would assume that probably the the first call on the power, under the basic law, would rest with the Army Engineers for the operation of their works, which would include the construction, I assume.

Mr. BERGMAN. Well, of course it was private contractors building the dam. Therefore, I would imagine that they assume that it was up to the private contractor to furnish his own power.

Senator CASE. It might be. That would depend on the contract that was let for the job.

Representative KNUTSON. Mr. Chairman, may I ask a question?

Senator MURRAY. You may.

Representative KNUTSON. In this particular bill, on page 2, would we have to amend this bill to be included, legally? We are east of the 98th meridian.

Senator MURRAY. That would come under the O'Mahoney-Millikin amendment.

Representative KNUTSON. Would we be included?

Senator MURRAY. No, you would not, if you are outside of this area.

Representative KNUTSON. Then we would have to amend this bill to make it all legal?

Senator MURRAY. Yes, you would.

Representative KNUTSON. Then we will try to.

Mr. STIENING. May I make a further statement, Mr. Chairman?

Senator MURRAY. Yes.

Mr. STIENING. The high line, I call it the high line, that the Government originally built went from Garrison Dam as far east as Jamestown, and Jamestown is 40 miles west of Valley City, which Mr. Bergman comes from. When I was mayor of Moorhead in 1942 or 1943, one of those years, the Senate had appropriated $10 million to extend that line to a point a couple of miles west of Fargo. The House did not go along with that. Myself, as mayor, and Mr. Young came to Washington and we saw every member of the House committee and told them the very problem that we are telling you here today. We told them the same story, insofar as our troubles in growth are concerned. They saw that, and I like to think that our visit with them had its effect, because the conference committees then wrote the $10 million into the bill and the line was built from Jamestown to Fargo.

Fargo is just across the Little Red River from Moorhead. We are all one big community. I am thunderstruck hearing here that under the existing law the 98th parallel is the east boundary. I cannot understand how that big line was ever built west, east clear up to Fargo. It puzzles me a little bit, and I do not have the answer to it, as to why that was done, letting us people believe we are going to get this power, and now we are cut off at the 98th meridian.

Senator CASE. Mr. Chairman, I might observe that the language in the O'Mahoney-Millikin amendment, and whether or not it applies to the situation I am not attempting to say, if it does apply to the situation, refers to the States which lie wholly or partly west of the 98th meridian.

Fargo, of course, is in North Dakota, which does lie partly west of the 98th meridian.

Mr. BERGMAN. Mr. Chairman, it might be well to bring into this testimony that I happened to be up and around Garrison Dam on business 4 weeks ago. I stopped in there and took a tour through the dam. I asked one question: "How does your water, your pool level, compare today with as it was 1 year ago?" The commanding officer told me at that time, if my memory serves me right, that it was 3.2 feet lower than it was a year ago. Then I asked him: "What would have to take place in order to get sufficient waters in back of Garrison Dam to meet part of the firm commitments?"

He told me they would have to have approximately 4 years of additional abnormal rainfall in order to fill up the basin. So it does not look like this problem can be solved today.

Senator CASE. That was why I made the remark I did a while ago about going to some other source. I think you are confronted with an actual situation, and since you do have a real problem of meeting the need there, you have to face those facts.

Mr. YOUNG. But Senator, we depended on this power, and even if we go ahead and increase the size of our plant, it would be a matter of 2 years. It seems to me that there should be some way that we could get some portion of that commitment of firm power, just like a good many other utilities are getting it around the west there, in view of the fact that they led us to believe that it would be available by now.

Senator CASE. Did your contract with the Bureau provide that in case they did not have the power from hydro plants, that they would purchase it elsewhere?

Mr. YOUNG. No, sir.

They gave us to understand in the first instance that the power would be available by 1956. Or maybe it was 1957. But the contract when it was actually signed in January 1955 said that that firm power would be available in 1959. That is their commitment. I do not know if they are going to get it all from hydropower or not, Senator.

Senator MURRAY. You people have presented very fine statements here this morning. It seems to me that they should be given very careful study. I am sure the joint committee will give very careful consideration to your testimony.

Mr. STIENING. Thank you very much.

Mr. YOUNG. Thank you.

Mr. BERGMAN. Thank you, Mr. Chairman.

Representative KNUTSON. Thank you, Mr. Chairman, and members of the committee.

Senator MURRAY. The next witness is Harry Green, Rosebud Electric Cooperative, of Gregory, S. Dak.

STATEMENT OF HARRY M. GREEN, MANAGER, ROSEBUD ELECTRIC COOPERATIVE, INC., GREGORY, S. DAK.

Mr. GREEN. Mr. Chairman, members of the committee, my name is Harry M. Green. I am manager of the Rosebud Electric Cooperative, Inc., a distribution electric cooperative, financed through the Rural Electrification Administration and serving 4,000 urban and farm families in south central South Dakota.

The Rosebud system, like many other systems in western South Dakota, are comparatively new and have their growing period ahead of them. People in the area, both urban and on the farm, are just beginning to make full use of electricity effectively and in quantities far above what was expected would be used a few years ago.

At the inception of REA in this area, the anticipated wide use of power, gained from the experience of older cooperatives in the other areas, quite naturally brought on the question of a wholesale power source in sufficient quantities to provide for the expanding needs of the people and at a price they could afford to pay.

About 3 years ago the United States Bureau of Reclamation and the Corps of Army Engineers completed the Fort Randall Dam project and certain other facilities, such as transmission lines, a part of which

extends approximately 70 miles northwest of the dam. The people in the area are extremely thankful for the progress that has been made in this respect and for the low cost power that has been made available for them. Power brought into the area, from the dam, reduced the wholesale cost approximately 66 percent below that purchased from power suppliers in the State of Nebraska, and generated by locally owned diesel plants.

I would like to bring to your attention the fact that most of the rural electric systems, west of the Missouri River in South Dakota, would not be in existence now had it not been for the early planning for the development of the Missouri River Basin which would eventually make available an abundance of cheap hydroelectric power for these rural electric systems.

On or about December 11, 1951, the Rosebud Electric Cooperative and the United States Bureau of Reclamation entered into a contract for the delivery of power from the Bureau system at certain specified points in the area. In March 1955, at the request of the USBR, the above-mentioned contract was replaced by another contract stipulating certain points of delivery and, among other things, setting a maximum of 4,000 kilowatts to be delivered to the Rosebud system through the year 1958. We did not object to this amount except that we were informed, not once, but many times, should our requirements exceed the 4,000 kilowatts allotted to our system, we would have to look elsewhere for additional sources of power.

What I would like to point out to this committee is, even though we are a preference customer of the United States Government and our members are paying their portion of the cost of providing Federal hydropower, through their electric bills, the Bureau of Reclamation has never indicated that they are willing to accept their utility responsibility in regard to supplying us with the necessary power requirements for the continuing and increasing needs of the people in the area.

About a year ago, our cooperative, along with some 28 other organizations in South Dakota, set out, through long-range forecasts, to determine what rates would have to be charged for power delivered to our members for the many uses required on the farm and in the farm home. One of the important parts of this study was a survey that determined our members would ultimately require 15,000 to 18,000 kilowatt-hours per year. Having determined this, we then set out, through engineering firms, to determine what the cost would be to supply our people with these large amounts of power. It was found that we could determine, close enough for the purpose of study, the cost of distributing the power.

Senator CASE. Before you go to the next portion of your statement, I would like to clarify a point. You said a while ago that your cooperative, along with 28 others, set out to make this study and then you determined that your members would ultimately require 15,000 to 18,000 kilowatt-hours per year.

Does that statement of 15,000 to 18,000 refer to the 28 other organizations or just to Rosebud?

Mr. GREEN. It was our own organization.

Senator CASE. Rosebud alone?

Mr. GREEN. That is right.

Senator CASE. So what has been satisfied with 4,000 will require 15,000 to 18,000 or, in other words, about 4 times as much?

Mr. GREEN. That is right. That is an estimated figure.

Senator CASE. Did that same statement apply to the others in the 28-member organization?

Mr. GREEN. I cannot speak for the others, but I think you will find it to be fairly representative.

Senator CASE. It is fairly representative?

Mr. GREEN. Or more.

Senator CASE. That is a very substantial increase, Mr. Chairman, four times.

Senator MURRAY. Yes.

Senator BARRETT. Mr. Chairman, I would like to ask Mr. Green a question.

On page 2, Mr. Green, in the next to the last paragraph, you state that the Bureau of Reclamation has never indicated that they are willing to accept their utility responsibility in regard to supplying you with the necessary power requirements for the continuing and increasing needs of the people in the area.

What I would like to ask you is just what is the responsibility of the Bureau of Reclamation in that regard? I do not have any idea that they are under any responsibility in Wyoming to furnish us power. I would like to pursue that a bit. What is their responsibility, in your opinion?

Mr. GREEN. Well, in my mind the Bureau, as a power supplier, should furnish the necessary power for an area.

Senator BARRETT. You do not mean to say that they are under some obligation to you to go out and generate the power and bring it in to you; do you?

Mr. GREEN. Not any more for us than for any of the other preference customers, I would say. The way I look at it, as I stated here before, we have to depend on them for our power or go elsewhere to get it. There is not any power in our area except what we would have to provide from plants to generate.

Senator BARRETT. I thought they were under no obligation to you, but if they did have the power available, then they might be under a responsibility to deliver it to preference customers. I was not quite clear what you were driving at. They are under no obligation to go out and get the power to keep up with the demand; are they?

Mr. GREEN. Not that I know of. I assume that they should supply an area because there is no other supply there. We are right next to the dam. We are within 60 or 70 miles of Fort Randall.

Senator CASE. Let us pursue that a moment, if we may, Mr. Chairman.

Mr. Green, what do you regard as the responsibility of the Rosebud Cooperative for the consumers in your area?

Let me make it a little clearer. Do you supply power to the farmers and to the townspeople in the vicinity of Gregory?

Mr. GREEN. We do.

Senator CASE. Do they have any other source of commercial supply?

Mr. GREEN. There is none.

Senator CASE. If the people in Gregory or the farmers immediately adjacent to Gregory need more power, would you feel that the Rosebud

Electric Cooperative has a responsibility to get that power for them?

Mr. GREEN. Yes, sir.

Senator CASE. And when you refer to the utility responsibility of the Bureau, are you carrying that one step further and saying "We have a responsibility to the people in the consumer area that we supply, so we look to our power supply to supply us with the power that we need to serve our customers"?

Mr. GREEN. That is correct. I was going to bring that out a little later.

Senator MURRAY. You may proceed with your statement.

Mr. GREEN. However, our plans for supplying power in abundance at the lowest possible cost were hampered by two situations.

1. Will the Bureau of Reclamation accept its utility responsibility as a supplier of power to furnish the necessary needs for the increasing demands of our members? The cooperative must accept its utility responsibility to its members, but our power supplier, the United States Bureau of Reclamation, does not accept its responsibility to the cooperative. We are confident that if the operation of the dams, and the Missouri River Basin in general, are managed to produce the maximum amount of benefits to the people, namely, water for domestic use, irrigation, and industrial hydroelectric power and recreation, we can, perhaps, be a little more confident of our ability to supply the needs of our people with Bureau power. As stated above, our members, like many other preference customers of Federal power, are financing, through their electric bills, the large share of the reimbursable portion of the dam, but the people who are paying for these projects have no voice in their management or operation and the possible benefits that could accrue will probably never occur under the present policy and management.

2. The same holds true with the transmission facilities of the Bureau in this area. The present facilities are adequate to care for the requirements now, but our engineers inform us that in order to care for the increased demands, as indicated in our long-range planning program, several hundred thousand dollars will have to be invested in transmission lines and substation equipment. This we are willing to do, but with a bottleneck between our system and the source of supply, it would be a very poor investment. This would be like building a water system, in a town, with 4-inch mains and ample capacity to serve all the residents, and then having a 1-inch line to feed the entire town.

We firmly believe that the United States Government is morally obligated to accept its utility responsibility to its customers, which, under the present system of management of the dams and waterways of the Missouri Basin and the policy as set up by the Bureau of Reclamation for the operation of their transmission system, is completely ignored.

Thank you, Mr. Chairman and members.

Senator MURRAY. Are there any further questions?

If not, thank you very much for your statement.

That concludes the list of witnesses this morning.

The committee will now recess until 2 o'clock.

(Whereupon, at 11:45 a. m., the committee was recessed, to reconvene at 2 p. m. the same day.)

AFTERNOON SESSION

Senator MURRAY. The committee will be in order, please.

During the hearing this morning, Mr. Holum referred to the report of the Missouri Basin Commission survey made in 1953. Both Mr. Holum and I were members of that Commissoin. I feel they did excellent work and made some very fine recommendations. Since this material is pertinent to this inquiry, we will incorporate the report of that Commission by reference in the files of this hearing.

Two Members of the House of Representatives are scheduled to testify this afternoon, but because of the House being in session they will have to be heard whenever they can appear.

Our first witness will be City Commissioner Francis McNeary, of Aberdeen, S. Dak.

We will hear Congressman McGovern and Congressman Aspinall when they arrive.

Mr. McNeary, will you please come forward?

STATEMENT OF FRANCIS McNEARY, ABERDEEN, S. DAK.

Mr. MCNEARY. Mr. Chairman, I would like to make reference to two different letters, and I would like to offer them to the committee.

Senator MURRAY. Do you want them incorporated in the record?

Mr. MCNEARY Yes, sir.

Senator MURRAY. Very well.

(The letters referred to follow:)

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Huron, S. Dak., September 10, 1956.

Hon. J. CLIFTON HURLBERT,
Mayor of the City of Aberdeen, Aberdeen, S. Dak.

MY DEAR MAYOR HURLBERT: Reference is made to your letter of June 14, 1956, and our subsequent telephone and personal contacts with Commissioner Francis McNeary relative to your request for 200 kilowatts of additional firm power.

As we have indicated verbally, all firm power available from Federal hydroelectric plants in this area has already been committed. For that reason, the Bureau of Reclamation is not in position to supply you with additional firm power at this time for water pumping or other uses.

No additional firm power is in prospect prior to 1961 or 1962 when the Oahe Dam and powerplant is tentatively scheduled for completion.

We regret our inability to comply with your request for additional firm power.

Sincerely yours,

G. J. CHENEY, *Project Manager.*

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Huron, S. Dak., September 20, 1956.

Hon. J. CLIFTON HURLBERT,
Mayor of the City of Aberdeen, Aberdeen, S. Dak.

MY DEAR MAYOR HURLBERT: Reference is made to your letter of September 10, 1956, in which you request 200 kilowatts of nonfirm power (secondary or dump) for municipal use at the Pickus pit.

As the term implies, nonfirm energy is not available at all times. It is subject to curtailment or total interruption as required by water supply or other conditions which may exist on the Bureau system. In general, Bureau nonfirm energy is available only during the navigation season normally extending from mid-March to mid-November. Ordinarily, although your case may be an exception, power customers of the Bureau require power and energy on a year-round basis.

For that reason the Bureau, as a matter of policy, requires that any customers contracting for secondary or dump energy have sufficient firm capacity to supply all or part of the load normally supplied by secondary energy when it (the Bureau) for any reason cannot supply the energy required to serve that load.

For the above reasons, the Bureau will be unable, under present circumstances, to supply nonfirm energy for your municipal pumping requirements at the Pickus pit.

It occurs to us that there may be a possibility that the nature of the pumping requirement at the Pickus pit is such that your city could use, and the Bureau could supply, seasonal firm power. Seasonal power would be available only during the navigation season and would, therefore, be of value only to those who would not require that power beyond the navigation season. We will be pleased to discuss this matter further with you in the event you feel that such power would be of benefit in your situation.

It appears to us that there remain a number of items which perhaps should be discussed in the interest of clarification. Among these are the matter of transmission and substation capacity and availability, the possibility of operating your pumping equipment during offpeak periods or, failing in that, to stagger your operations so that portions of this pumping equipment could be operated on an offpeak period. By so doing, it is wholly possible that you could accomplish your pumping requirements within the limitations established in your present firm power contract. If you would be interested in a discussion of these matters, we would be pleased to meet with you for that purpose. We suggest holding the meeting here at a date to suit your convenience.

Sincerely yours,

G. J. CHENEY, *Project Manager.*

Mr. MCNEARY. Mr. Chairman, I am Francis McNeary, a lifelong resident of Aberdeen and Brown County, S. Dak. For the past 8 years, I have been an elected member of the city commission serving the city of Aberdeen as water commissioner.

Aberdeen has had a water supply problem since it has been known as the Hub City of the Dakotas. The people of Aberdeen, elected officials and citizens, have been attempting to solve this problem for the past 40 years. Many solutions have come to the limelight and they have later passed as impossible, not because of the needs or desires of Aberdeen, but because the development of such projects would be impossible to finance locally.

Aberdeen is vital to our State and to the Nation, because of our location. We are the crossroads of America. Highway 12, a direct route from Puget Sound to Plymouth Rock; Highway 281, Canada to Mexico. You know our part in the breadbasket of our Nation, in peace and in war. Aberdeen is ideally located for industrial development, particularly for the processing of farm commodities. We have been denied that industrial development because of water. We trust that the Congress will not permit the water we will need so urgently in the future to be committed to downstream uses of lesser value to the national economy.

Aberdeen and the trade area it serves has contributed greatly to the development of the Missouri River Basin program. Consideration should in return be given to the people who have sacrificed to make this possible. Aberdeen has spent thousands of dollars to harness with dams the water of the Elm River and Willow Creek. This is our only surface source. In the dry years of 1938 to 1942 we were forced to pump surface water from gravel pits to supplement our needs. In 1956, and now, we are again in the same position—pumping from gravel pits to supply our needs.

This year a bond issue of $150,000 was issued to restore a dam on Willow Creek. This was voted by taxpayers who fully realized that it was not the answer to our water supply, but was only a stopgap measure. I, as water commissioner of Aberdeen, ask this committee to recognize our future requirements and make them a part of the Bureau's program on irrigation, et cetera, to be developed in Brown County, so we may participate in the benefits in proportion to the sacrifices we have made.

The cost of coal and deisel generation of power in Aberdeen, Brown County, and central South Dakota, is one of the highest in the Nation. There is a shortage of power in our State and our city has felt the impact of that shortage.

The city of Aberdeen, as preference customer under the Flood Control Act of 1944, asked June 14, 1956, for an additional 200 kilowatt-hours of firm power for water-pumping needs. August 20, 1956, the Bureau of Reclamation told us that it was impossible because all firm power available from Federal hydroelectric plants in the area had already been committed. September 10, 1956, Aberdeen made application to the Bureau of Reclamation for 200 kilowatt-hours secondary power, or dump power, for water-pumping needs. Again, September 20, 1956, Aberdeen was refused because we did not have firm capacity to supply all, or part of the load normally supplied by secondary energy when it, the Bureau, for any reason cannot supply the energy required to serve the load. Aberdeen has the facilities and arrangements for the delivery of adequate power needs.

I believe it is only fair to tell this committee that the present and past district administration at Huron, S. Dak., has done everything possible in its power to meet our needs, but high level administrative directives have defeated our needs.

Aberdeen is in the process of developing greater water-pumping needs. We have firm allocation of 550-kilowatt hour contract with the Bureau of Reclamation. For the winter season of 1956 and 1957 we have a negotiative contract for 346 kilowatt-hours.

Surveys, studies, and recommendations have been made by the engineering firm of Black & Veatch to repair our water facilities. The people of Aberdeen have followed their recommendations and voted over $2 million to accomplish this. Now we are facing a situation where we have the facilities approved, and are in question as to where we will receive the necessary power to operate the same. It is estimated that 1,150 to 1,200 kilovolt-amperes will be needed to operate proposed facilities. It is my belief and hope that after careful consideration this committee will not let the people of the city of Aberdeen and the State of South Dakota down, as they have given so freely to make the Missouri River program one of the greatest projects in modern American history.

Thank you.

Senator MURRAY. Thank you very much for your statement.

The Chair will recognize Congressman Wayne Aspinall, of Colorado.

STATEMENT OF HON. WAYNE ASPINALL, A UNITED STATES REPRESENTATIVE FROM THE STATE OF COLORADO

Representative ASPINALL. Mr. Chairman, and members of the committee. As the chairman said, my name is Wayne Aspinall and I represent the Fourth District of Colorado in the House of Representatives. I am particularly glad to be here at this time, Mr. Chairman, when my former colleague from Colorado, the present junior Senator from Colorado, is present on the committee.

I also enjoy being here with my former colleague and the present Senator from the State of South Dakota, a member of this committee.

The Fourth District of Colorado covers 24 counties and in those counties there are 12 rural electric cooperatives serving approximately 30,000 consumers, I, therefore, have a very real and personal interest in all problems pertaining to an adequate power supply for the rural communities of America, although, of course, my direct interest is in those rural communities that I represent.

I am a member of the Interior and Insular Affairs Committee of the House and in that committee my principle work has been in connection with irrigation and reclamation. This has given me an intimate knowledge of the water problems of our country. In addition, I was privileged during 1952 to serve on the President's Missouri Basin Survey Commission which made an extensive study of the water problems of the Missouri River Basin. Because of this, I am interested in the water problems of the country generally, and especially in the water problems of the Missouri River Basin, even though the area that I represent in the House of Representatives has but a small portion of it in the Missouri River Basin, and that, as the members of this committee know, is known as the North Park area, the headwaters of the North Platte River.

In the studies which the Survey Commission made of the Missouri River Basin, we came to the definite conclusion that the use of water for hydroelectric power was to be preferred over the use of water for navigation, so that whenever, unfortunately, there was a conflict between the uses of the water for these two purposes then use of the water for power generation was to take precedence. This is a conclusion to which the Survey Commission came as the result of its own studies.

We did not base that conclusion on any existing legal requirements, but rather on the overall needs of the Missouri River Basin. Therefore, I can report to you that as the result of this very thorough study which we made, it was the unanimous conclusion of the Survey Commission that power generation needs be met before navigation needs.

I refer you to page 18 of a summary of the recommendations from the report of the Missouri Basin Survey Comission, chapter 4, subsection 1.

Senator CASE. Mr. Congressman, would you mind identifying the creation of that Commission again?

Representative ASPINALL. The Commission was created by an act of President Truman in 1951, if I remember correctly. It served in 1952. There were 11 members on the Commission. The membership I do not have right on the tip of my tongue, all of them, at the pres-

ent time, but there were members from the United States Senate, the United States House of Representatives, as well as members from the area.

Senator CASE. Was it created in response to a congressional directive?

Representative ASPINALL. As I remember, it was a part of the overall Missouri Basin study created in response to an Executive Order No. 10,318.

Senator CASE. I remember the creation of the Commission. It was a very able group. What I am seeking constantly from these references, and I did the same thing a while ago, is I am trying to find if there exists any statutory interpretation or definition of priorities or of beneficial consumptive use, if there is anything where Congress has made a specific finding or set up some priority. I think we ought to make it a matter of record, if there is such a thing of record.

Representative ASPINALL. As I understand the situation, Senator Case, that implied setting up of priorities, at least, and to me it is expressed. It comes in the O'Mahoney-Millikin amendment to the Flood Control Act of 1944. The rest of my statement will refer briefly to that.

Senator CASE. We had a good deal of discussion of that yesterday, and then we ran back into how do you interpret the O'Mahoney-Millikin amendment. I am trying to see if there is any statutory interpretation of the amendment.

Pardon the interruption.

Representative ASPINALL. Even though I then had and presently have no doubts as to the correctness of this conclusion on the basis of my own studies, I feel greatly fortified in my opinion by what has already been told to your committees by one whom I consider to be one of the outstanding authorities on water problems; namely, Senator O'Mahoney. I have been informed that Senator O'Mahoney has testified here that not only should power generation be a preferred use as against navigation, but that his amendment to the Flood Control Act of 1944 specifying that industrial purposes shall be a preferred use as against navigation specifically makes it a legal requirement that power generation use be preferred over navigation use.

As I referred to Senator O'Mahoney's position in this particular amendment to the act of 1944, I wish to also advise the committee that the former senior Senator from the State of Colorado, Senator Eugene Millikin, whose contributions to our National Government, national legislative body, are well known by all of us, was a party, also, to the drafting of that amendment.

Senator O'Mahoney's testimony confirms entirely my own convictions and I wish to take this opportunity to endorse what he has said. Clearly, power generation is an industrial use. This seems so clear that it should be beyond any question. But if there were any question, certainly it has been disposed of on the authoritative statement of Senator O'Mahoney, who stands as a double authority on the subject: first, as an outstanding authority on water problems, and, secondly, as the man who helped author the very language involved.

It seems to me that anyone who understands the vital need of adequate supplies of low-cost power for the farmer would immediately

agree that those needs are paramount to navigation needs, so that whenever there is that unfortunate situation that exists here, where there is not enough water to take care of both power generation and navigation needs, certainly the power needs must be taken care of first.

Therefore, as a matter of sound policy and as a matter of law, it seems incumbent upon the agencies charged with the responsibility for the operation of the Federal projects in the Missouri River Basin to limit the use of the water for navigation to such use as does not conflict with the use of the water for power generation.

Of course, the ideal situation would be if we could produce a solution which would take care of all of these desirable purposes. As a long-range solution of that type, there are two sound courses of action. One is to proceed to develop slack-water navigation so that there will be ample water for navigation without encroaching upon the use of that water for power generation. Secondly, there should be steam generation to firm up the hydrogeneration, so that the maximum benefits of the hydrogeneration can be realized.

Over the many years I have been in Congress I have heard time and again that the most economic use of hydropower is in connection with steam power. I believe that Government projects should be operated on an economic basis. Therefore, I believe that wherever feasible there should be steam power to firm up the hydropower. This I understand is especially true in the Missouri River Basin because the large supplies of low-cost lignite which exist in North and South Dakota would make steam generation very inexpensive.

I therefore join with my friends here from the rural electric cooperatives to urge that a program be initiated immediately both for slack-water navigation and for steam power to firm up the hydropower in the Missouri Basin and, I might say, elsewhere if it is needed.

I want to thank you for this opportunity of appearing before you. I thank you, Mr. Chairman, for permitting me to testify at this time and to present the statement, because I did not feel like I could testify otherwise at this time.

Senator CARROLL. I want to say to the distinguished Congressman from the Fourth District of Colorado that he has been very, very helpful in giving us not only his opinion but giving us the information upon which your survey was based.

Yesterday we had Senator O'Mahoney stand before this committee with a map and give the legislative and historical background to the O'Mahoney-Millikin amendment. He has substantiated in every way the testimony you have given today, with one additional factor. That is that in irrigation—you mentioned farming—in irrigation itself there is testimony before this committee that power is being used for irrigation with respect to the Missouri Valley Basin project. I think that is substantially correct.

The cost of the power was 2.5 mills for irrigation use.

Am I right about that, Senator Case, that power is being used at this time, or is it contemplated?

Senator CASE. Only to a limited extent, but it is anticipated it will be used more.

Senator CARROLL. So it is a part of the operating principles. Senator O'Mahoney said there was never any doubt in his mind or in Senator Millikin's mind, that the use of electrical energy was con-

templated when they used the descriptive phrase "of beneficial consumptive use." Your testimony here today as not only one of the most learned men, in my opinion, on water law in the House of Representatives and Congress itself, but with your wide experience in that field, will be of great help to those who read the record as they attempt to give a proper interpretation to the words "of the beneficial consumptive use."

I thank you very much for coming before this committee.

Representative ASPINALL. Thank you.

Senator CASE. I appreciate the statement very much. Congressman Aspinall has been very helpful in this whole field.

Senator CARROLL. I think the record ought to further show that Congressman Aspinall was the chairman of the Subcommittee on Irrigation and Reclamation in the House of Representatives.

Senator MURRAY. Thank you, Congressman Aspinall, for a fine presentation.

Representative ASPINALL. Thank you very much, Mr. Chairman.

Senator MURRAY. Congressman McGovern, will you please come forward.

STATEMENT OF HON. GEORGE S. McGOVERN, A UNITED STATES REPRESENTATIVE FROM THE STATE OF SOUTH DAKOTA

Senator MURRAY. You may proceed, Congressman.

Representative MCGOVERN. Mr. Chairman, and members of the committee, I am George McGovern, the Congressman from the First District of South Dakota.

The State of South Dakota, incidentally, is cut in half by the Missouri River, and the river forms the dividing line between our two congressional districts.

I want, first of all, to express my personal appreciation to the members of the Senate Committee on Interior and Insular Affairs, and the Senate Public Works Committee, for arranging these important hearings, and for finding time in your schedule to hear the people from my State and from our area, the upper Missouri region.

I might also say that I am proud of the membership of the South Dakota Legislature for considering and unanimously adopting the concurrent resolution which influenced, in part, your decision to hold these hearings.

Water is one of our Nation's most precious resources. Indeed, water and land form the physical foundation on which human beings exist.

The amount of sweet water available limits the growth of our cities and towns, controls and determines industrial development, regulates agricultural production, and, when run through hydroelectric turbines, has a substantial effect on the availability and cost of electric power. With every other area of the Nation cognizant of the importance of water in our economy, there is some reason to wonder why South Dakota has been so generous with its limited supply.

I am here today to emphasize the fact that the action of our legislature typifies a new understanding of the value of our resources on the part of South Dakota people. If water is a precious resource in the Tennessee Valley, where an area one-tenth of the size of the

Missouri Valley produces an equal amount of discharge into the Mississippi River, then water is certainly much more precious in my State.

We appreciate the fact that the Nation is willing to participate in the development of the resources of our area. We are confident that the Nation is making a good investment of its funds that will be repaid with the revenue from hydroelectric power and other services, and the increasing productivity of our area.

Because the Congress recognized the value of water in the arid and semiarid Middle West, the O'Mahoney-Millikin amendment was added to the Flood Control Act of 1944. We now ask this committee to investigate the management of water to determine whether or not the watermasters, whoever they may be, are managing the waters of the Missouri River in accordance with the intention of the O'Mahoney-Millikin amendment and the best interests of the States which produce the water and have contributed the land for the reservoir sites. We recognize the multipurpose nature of Missouri River development and we seek no quarrel with other States of the Missouri Valley.

But we have great interest in these investigations. The shortage of water always has limited agricultural production in South Dakota. We want to be certain that no interest develops an unreasonable claim on the water that we need to use for irrigation in the future. Our cities and towns are almost universally short of water for domestic purposes and industrial development. Naturally, we are determined to safeguard their rights to water which is produced and stored in South Dakota.

Rural electrification would not have been possible in South Dakota without Missouri River development. Ours is a State where electric power always has been limited in supply and high in cost. After 1944 the Rural Electric Administration was able to base its feasibility studies on Bureau of Reclamation power, and we were able to proceed to electrify our farm homes.

Today, the Bureau of Reclamation is the only source of power supply for most of our cooperatives. The Bureau cannot or will not assume a utility responsibility toward its customers. The rural electric cooperatives, on the other hand, must assume that responsibility to their members. Obviously, the preference customers, and particularly the rural electrics, find themselves in a never-ending squeeze between a power supplier that admits no responsibility for continuity of service, and power users who have an urgent need for an uninterrupted supply of power.

Because of these pressures, and because of their real interest in the public welfare, the rural electric leaders of my State have been continually alert to problems in connection with our resource development. I am sure that the committee will find them well informed.

With many of our citizens looking to the Missouri River as their sole supply of electric power, it is easy to understand their keen interest in water management. Our critical power needs in South Dakota come during the winter months, with peak demands generally recorded during the Christmas holiday season. Naturally we are not happy with water management that sends our water downstream during the summer months and leaves us with a trickle of water and a minimum of power when our needs are the greatest.

Not only is this management discriminatory against the State which provides the water and sacrificed its good river bottom land to provide the storage reservoirs but it is reckless with the public purse as well. The water which has been impounded at considerable expense to the Treasury generates dump power to be sold at bargain prices when it is released during the summer months. The same water going through the same turbines during the winter months would generate much more valuable firm power and peaking capacity and would provide a greater return to the public on its investment.

In South Dakota we have practically limitless supplies of lignite coal. With modern technology and large-scale development this low-grade coal can and will generate tremendous blocks of power. If thermal-generated power from the lignite fields of the Dakotas were integrated with the hydroelectric power of the Missouri, we should have an abundance of electric energy. Such a system would be capable of supporting the Federal investment and our area of the Nation would be in a position to make a much greater contribution to the total national welfare.

May I respectfully urge these committees to take whatever action you deem necessary to safeguard the water rights of an area where water is scarce and doubly precious. May I also suggest that you reexamine the whole area of Missouri Basin planning and management to determine, on the basis of the operating experience which we have had to date, if it might not be advisable to substitute one agency with overall authority and responsibility for the multiplicity of agencies and the divided responsibilities which we have at this present time. Such a unified commission could be expected to view the overall problems of the Missouri Valley in such a manner as to give proper evaluation to the various interests competing for the available water supply.

Thank you for your courteous attention.

Mr. Chairman, I want to thank the committee for its attention and for the privilege of testifying today.

Senator CASE. Mr. Chairman, I would like to say that this is the first opportunity we have had to have the new Congressman from South Dakota appear before either the Public Works Committee or a joint hearing of the Public Works and Interior. We are glad to have him, and I think he has made a very helpful statement.

Senator CARROLL. I want to say, Congressman McGovern, while I have not heard all of the witnesses here since I have been absent when some of them testified, that this is the finest, clearest statement I have heard about the problems with which this committee is confronted. I personally am deeply indebted to you for bringing this to the attention of the committee and setting it forth in such clear and concise terms. I desire to thank you very much.

Representative MCGOVERN. Mr. Chairman, I wish to thank you, Senator Carroll, and my colleague from South Dakota, Senator Case, for your generous attention.

Senator CARROLL. Rest assured that I am sincere. It has been very helpful to me, and it gives me a much better picture, as a new member of this committee, of the problems with which we are confronted.

Senator MURRAY. Thank you very much, Congressman McGovern, for a fine presentation.

The next witness will be William Trommershausen.

STATEMENT OF WILLIAM E. TROMMERSHAUSEN, R. W. BECK & ASSOCIATES, UTILITY ANALYSTS AND ENGINEERS, SEATTLE, WASH, AND COLUMBUS, NEBR.

Mr. TROMMERSHAUSEN. Mr. Chairman, and members of the committee, my name is William E. Trommershausen. I am principal engineer and partner of R. W. Beck & Associates, utility analysts and engineers. We are employed for the purpose of this hearing, as technical advisers to the East River Electric Power Cooperative, Inc., Madison, S. Dak., and a group of cooperatives financed by the Rural Electrification Administration, on the Missouri Basin power supply matters currently under consideration by these committees in this joint hearing.

Our qualifications to perform this work are based on extensive engineering studies and analyses made for major power systems in the States of Nebraska and Washington over the past two decades.

I might also add that the firm specializes in analytical and feasibility studies. We are at present undertaking rate studies, power contract analyses, and economic feasibility studies, on a very large project on the Columbia River, for a bond issue coming up some time this year in the amount of about $225 million, which is going to be one of the largest revenue bond issues for a public power project, hydroelectric power, yet undertaken.

I give you that as background as to the type of work our firm does.

In the preparation of this summary, I have had the assistance of members of our engineering staff who are specially qualified in the specialized fields of hydraulics, power contracts, and rates, broad system studies and operation of major electric systems.

We have not had time to make a comprehensive, independent analysis of balanced water use in the Missouri Basin as between power and navigation.

During our review of the records and reports made available to us, we did, however, note several specific areas which appear to justify further engineering studies. In this presentation, we are happy to offer such suggestions for this committee, all in the spirit, Mr. Chairman, of your opening remarks, that what we need to do is to find the best use of this water and try to serve all purposes.

The next section is entitled "Present Operations of the Power Features of the Missouri Basin Project." I might say that that was prepared to give some background information, to see perhaps if someplace along the road we might see where our problems started.

I want to call your attention to a very significant sentence in the May 1953 report, Power Requirements and Supply of the Missouri River Region. On page 23 of that report, a direct quotation from Mr. William H. Gamble, of South Dakota:

> Although a transmission distribution study was considered outside the scope of this report, it would appear that no complete picture of the electric power supply in the Missouri Basin can be arrived at without considering this problem.

I might say that in the studies of the reports made available to us, we did not find any comprehensive transmission studies. I think everyone would agree that transmission lines are one of the tools necessary to put this river to work on a multipurpose, comprehensive basis. It appears to us that part of your problems have resulted from

lack of adequate transmission. We have to make that as a general statement because we have not had the opportunity to review transmission studies.

According to a letter dated November 26, 1952, to the executive director of the Missouri Basin Survey Commission, the Bureau found it necessary and desirable to operate certain backbone transmission lines. I had to go back to the 1950 report of the President's Water Power Policy Commission in order to find out generally what they had in mind. I have summarized from that report.

The basic transmission grid, as of 1950, contemplated:

1. Properly interconnect the Federal hydroelectric plants to provide maximum integration benefits and also compensate for the inherent inflexibility occasioned by the operation of the water-control plan to accommodate the specified navigation releases.

I would suspect that a part of the problem that the Corps of Engineers have had in releasing this water bypassing power facilities, may, in part, have been due to the fact that the transmission lines either were inadequate or did not come in on a proper schedule.

2. Enable the Federal network to gain a portion of the load diversity inherent in such a widespread operation extending across nearly a thousand miles.

3. Provide reasonably strong interties with the major systems of the public and private utilities in the region.

4. Provide reasonably adequate transmission lines to deliver the power to the load centers of the Bureau of Reclamation pumping plants, public agencies, and private utilities.

5. Provide a reasonable amount of transmission capacity between the tributary powerplants and the main-stem plants, which was considered essential to a balanced power operation in the region.

6. Provide a reasonable amount of interchange capacity between Wyoming and South Dakota and between Wyoming and Montana.

The only other recent transmission map made available for our use was one which is included in the November 1956 supplemental report of power requirements and supply. I can only make a very general appraisal of this map. If there are AC analyzer network studies available, of course, a more detailed analysis could be made. But I find from this map that at least a portion of the high-capacity 230-kilovolt lines between the main stem generating plants have been completed and are operating. The 2 high-capacity 230-kilovolt lines planned for interconnection with the transmission networks of Nebraska have not been constructed.

Instead, a series of short 115-kilovolt transmission lines to northeast Nebraska appear to have been constructed as substitute facilities.

The major high-capacity 230-kilovolt transmission loop, designed to integrate the Federal system with the utility systems in North Dakota, South Dakota, Iowa, and Minnesota, have been modified substantially so that the plan now consists of 3 radial 230-kilovolt lines which serve to provide high capacity interties between the main-stem generating plants and the systems of private utilities in Minnesota and Iowa and provide for deliveries to public agencies both directly and by wheeling arranged with the private utilities.

I might add there that I have learned today that the loop is being closed, the top two radial lines are now being closed, by the bureau by

230-kilovolt line under construction in Minnesota. So my notes should be corrected to that extent.

The interconnecting transmission facilities between Wyoming and South Dakota and between Wyoming and Montana have not been constructed as planned, hence the generating plants on the tributary rivers and those on the main stem cannot now be effectively and beneficially integrated. It is believed that this change in the basic planning may have been one of the major factors in the recurring power shortages that the preference customers have been experiencing over the past few years.

So much for this very brief summary on the status of transmission lines.

It may be well to look into the power-marketing plan. Here we look back to see what the record shows as to the possible alternate courses that were available to the power and hydraulic engineers in the Missouri Basin.

We were given a letter dated November 26, 1952, from the Bureau of Reclamation's regional directors of regions 6 and 7 to the Missouri Basin Survey Commission, as hereinbefore mentioned. Two power-marketing plans were considered in 1952, generally as follows:

1. Operate the Missouri Basin hydro plants for peaking in conjunction with thermal sources to meet the firm power obligations and sell nonfirm energy available during the navigation season as fuel displacement for thermal plants.

2. Sell firm power at normal load factors under a power sales schedule geared to the availability of such power under the Corps of Engineers' construction schedule. Such sales would be made to utilities having generation and those having none, with appropriate contractual arrangements made with those utilities having generation. All nonfirm energy would be sold as fuel displacement.

With respect to the above plans, the Bureau of Reclamation considered that the "maximum or best use" of the Missouri main-stem power system would be realized under the plan involving sales of peaking power. Although the record is not clear as to why the second plan, involving the sale of firm power on a load-factor basis, was adopted by the Bureau of Reclamation at that time, it is possible that failure to solve the problem of construction of thermal plants may have been the contributing factor.

Of course, that I do not know. That may have been the factor. If the committee desires to know why the second plan was adopted when the record indicates that the other plan would have been the best, it may be well, as a matter of clarification, to direct that question to the Bureau of Reclamation.

In any event, the record shows that the Bureau of Reclamation had anticipated taking care of such minor inadequacies in supply as may occur during the construction period of the Missouri Basin projects by purchase and interchange arrangements with customers having generating facilities. This latter provision was a definite necessity if the adopted power-marketing plan was to be successful in meeting the power requirements of the utilities in the area on an orderly and planned basis. This committee may want to make further inquiry of the preference customers to see if this plan was carried out in practice.

The information is not available to me to supply you with an answer to that question.

The May 1953 report of the Missouri Basin Interagency Committee, subcommittee on electric power, includes, on pages 40, 41, and 42, a general policy statement which was intended to serve as a guide to the Missouri Basin Interagency Committee, which statement was prepared by the presidents of the 15 privately owned utilities operating in the Missouri Basin. I make note of it here because in our opinion the report is unbalanced in that it did not have a similar statement or guide from the public agencies and from the Bureau of Reclamation, the principal marketing agent in the basin. If you were going to open one side of the question, it would appear to us that the Missouri Basin Interagency Committee could well have considered the whole project.

The summary of the policy statement which follows is quoted herein for the purpose of pointing out that only one facet of the power supply problem for the Missouri Basin was being fully considered by this group of utilities:

In summary, the investor-owned utilities wish to restate:

(*a*) That they have in the past met all the requirements for electric service in their respective areas, and, that the building of Federal projects on the Missouri River under the Flood Control Act of 1944 in nowise diminishes their responsibility in the future for providing firm, adequate electric service to these areas.

(*b*) That, through interconnection, they have achieved economies and other advantages to the benefit of the consumers, and that such practice and policies will be continued; that they recognize additional economies may be obtained through interconnecting their systems with the hydroelectric plants being developed on the Missouri River by the Federal Government.

(*c*) That the hydroelectric power produced by the Federal Government should be made available, through established distribution agencies, to all consumers without discrimination, and with the distinct understanding and contractual proviso that any savings thus accrued be passed on to the ultimate consumer.

The investor-owned utilities suggest that a plan be established and adopted for interconnecting the investor-owned systems with the hydroelectric systems of the Federal Government, in order to obtain maximum economies for the benefit of the ultimate consumer.

It is to be noted that the May 1953 report of the subcommittee on electric power, hereinbefore mentioned, did not include a policy statement on distribution and use of federally generated power by the preference customers of the Bureau of Reclamation or by the Bureau of Reclamation itself, the recognized marketing agent for the federally generated power. Hence this report, in our opinion, could not be considered to be a fully balanced one.

A few months later, on September 9, 1953, a revised directive from the Department of the Interior modified the existing power-marketing policies for the Missouri Basin, which new policy provided that power would be sold essentially on the following basis:

(1) As new Federal generation was placed in commercial operation, the Secretary of the Interior would make allocation of firm power at normal systems' load factor to those preference customers which could be served directly over their own facilities or those of the Federal Government, or could receive power under wheeling arrangements. Firm power was considered to be 110 percent of that which could be produced in an adverse year on the Missouri River, as distinguished from the critical year criteria customarily used for such determina-

tions, with the Federal Government purchasing energy deficiencies that might result from such application of the firm power criteria from other utilities to the extent that funds were appropriated, annually, by Congress.

I might digress here to state that that presents a problem for the preference customers in that you are buying firm power on a load factor basis and you cannot be sure, unless the requests are made and appropriations are made in adverse years so that the Bureau can buy or exchange energy to be whole on your contracts.

(2) All secondary and dump energy available over and above the firm power requirements of the Federal Government for its own use and sale to its customers would be sold to those utilities in the area which could make beneficial use of such nonfirm energy at rates based upon 85 percent of the decremental fuel cost of the purchaser.

I might digress again at this point. As you will note, the purchasers of nonfirm energy have a measuring base upon which their power is priced. That is 85 percent of fuel cost in a specific area. The purchasers of firm power now are dependent upon allocations and the pay-out schedule. I have reviewed several, and I find there is quite a variance in the amount that power revenues are expected to repay. To that extent you can see that the firm power purchasers, although they are buying power at 5.5 mills average cost now, do not have a base, a pricing base, as of today, that is known to us, to know what their firm power is going to cost in the years ahead. Only the purchasers of nonfirm power have a reasonable base upon which their product is priced.

Senator CASE. Mr. Trommershausen, did you discover in your study whether or not the rate schedule in the Missouri River Basin, on the power from these dams, had ever been submitted to the Federal Power Commission?

Mr. TROMMERSHAUSEN. No, sir, Senator Case. Our analysis did not go into that detail, and I cannot answer that question. I think that question could perhaps be best directed to the Bureau of Reclamation.

Senator CASE. We will ask that in time; but it is my impression that the basic law provided that on the power sold from the Army engineer dams, the rate schedules should be submitted to the Federal Power Commission.

Mr. TROMMERSHAUSEN. That is usually the case on Federal projects.

Senator CASE. I was wondering, in view of your statement that they had no firm base, if it was not perhaps due partly to the fact that they had not made the submission to the Federal Power Commisison and had it approved.

Mr. TROMMERSHAUSEN. The point I wanted to make was the fact that inasmuch as the allocation to power costs and the repayment schedules had not been firmed up, the firm power customers do not have as of today knowledge upon which their power will be priced.

Senator CASE. Is that due to the fact that the system is only partly completed?

Mr. TROMMERSHAUSEN. I do not know, sir, what is holding up the work on the allocation and repayment schedules. I know that in my discussions with the client, they furnished us with 3 or 4 tentative studies that have been made.

Senator CASE. A year ago we had a question which was brought up before the Public Works Committee with regard to the rate of power in the Southwest Power Administration area. There was a proposal there to change the rate. It seemed that they had been operating under some sort of interim rate.

We reported out legislation to postpone the effectiveness of the change in rate until that matter could be studied.

Are you suggesting here that this temporary rate might be changed at a later date?

Mr. TROMMERSHAUSEN. It is conceivable. It is conceivable.

Senator CASE. I will pursue that further when we have the Bureau of Reclamation people.

Senator MURRAY. Gentlemen, I have a conference that I have had arranged for at 2:30. I will have to leave now. I will ask Mr. Carroll to take the chair and I will return as soon as I can get through with my conference.

Mr. TROMMERSHAUSEN. Continuing on the summary of the existing power marketing policies, next is item 3.

(3) Such peaking capacity, without energy, as is available for sale from the Federal system would be offered to any utility with generation which was in a position to deliver to the Federal reservoirs the energy that would be necessary to use the peaking capacity so purchased.

Reduced, perhaps, to simpler terms: under such a plan, you would simply be renting machine capacity or generating capacity from the Federal Government, because you would furnish your own energy ahead of time, store it in the Federal reservoir, and the Government would run it through the plant and deliver it to the customers.

Next is item No. 4:

(4) The Bureau of Reclamation would henceforth not maintain reserve capacity to back up its firm power sales, but would hereafter depend on its system diversity to provide such reserves as may be necessary in actual operation. This revision does not generally follow the pattern in the industry and, depending on how it is actually administered, it could have an adverse effect on the construction of new generating facilities by the preference customers who may want to enter into standby and interchange contracts with the Bureau of Reclamation.

Since I dictated this, we heard Virgil Hanlon discussing a problem that he had, generally along this same line, where he was required to purchase emergency service from a local private utility.

From a letter by Mr. W. A. Dexheimer, Commissioner of Reclamation, dated March 28, 1957, to Hon. George S. McGovern, Representative from South Dakota, a summary of the power sales that were made during calendar year 1956 under the present power marketing policy was prepared, which summary is shown as a separate table following this section.

(The summary is as follows:)

Energy sales, 1956, Missouri River Basin, eastern division, Bureau of Reclamation [1]

	Total sales megawatt-hours	Sales to privately owned utilities		Sales to States, Federal Government, public agencies, and others	
		Megawatt-hours	Percent of total	Megawatt-hours	Percent of total
Firm energy:					
Montana	165,222	33,633	20.4	131,589	79.6
North Dakota	201,523	64,657	32.1	136,866	67.9
South Dakota	380,693	3,296	0.9	377,397	99.1
Iowa	86,326	0	0	86,326	100.0
Minnesota	14,420	0	0	14,420	100.0
Nebraska	468,467	0	0	468,467	100.0
Total firm energy	1,316,651	101,586	7.7	1,215,065	92.3
Secondary energy:					
Montana and North Dakota	355,471	195,348	55.0	160,123	45.0
South Dakota	114,914	93,765	81.6	21,149	18.4
Iowa	2,613	0	0	2,613	100.0
Total secondary energy	472,998	289,113	61.1	183,885	38.9
Dump energy:					
Montana	303,742	303,742	100.0	0	0
North Dakota	11,491	11,491	100.0	0	0
South Dakota	51,063	51,063	100.0	0	0
Iowa	137,720	137,720	100.0	0	0
Nebraska	94,177	0	0	94,177	100.0
Total dump energy	598,193	504,016	84.3	94,117	15.7
Total energy:					
Montana	485,201	337,375	69.5	147,826	30.5
North Dakota	552,248	271,496	49.2	280,752	50.8
South Dakota	546,670	148,124	27.1	398,546	72.9
Iowa	226,659	137,720	60.8	88,939	39.2
Minnesota	14,420	0	0	14,420	100.0
Nebraska	562,644	0	0	562,644	100.0
Total	2,387,842	894,715	37.5	1,493,127	62.5

[1] Letter from Mr. W. A. Dexheimer to Hon. George S. McGovern, dated Mar. 28, 1957.

Source: Compiled by R. W. Beck & Associates, Apr. 23, 1957.

Mr. TROMMERSHAUSEN. It was noted in the above-mentioned letter by Reclamation Commissioner W. A. Dexheimer that only one customer had attempted to use the peaking capacity arrangement during 1956, and that in a very minor way. I think perhaps that was one of the witnesses that testified here this morning.

It was further noted that, whereas the previous estimates of the Bureau of Reclamation indicated that the ratio of firm-power sales to nonfirm sales would be approximately 12 to 6, the actual ratio during 1956 was approximately 13 to 11. This committee may be interested in finding out from the Federal agencies operating the Missouri River system why the present method of operation is producing such large quantities of dump energy, which brings substantially less revenues into the Federal Treasury.

The following summary of estimates of future power loads, commitments, and availability of power from the Federal system for the period 1958 through 1960 is taken from a letter dated February 19, 1957, from Assistant Secretary of the Interior, Fred G. Aandahl, to Mr. Virgil Hanlon, manager of the East River Electric Power Co-

operative, Inc., of South Dakota. We have taken the summary from that letter, and, in view of the fact that that summary was explained yesterday by Mr. Hanlon, I will not repeat it here.

(Summary referred to follows:)

Eastern division of Missouri River project, including Fort Peck area

[Megawatts at load]

	1958	1959	1960
Median water conditions: [1]			
Firm power available	551	608	605
Firm power commitments	568	568	560
Surplus firm power	0	40	45
Firm power deficiency	17	0	0
Peaking power available	0	45	117
Adverse water conditions: [2]			
Firm power available	452	563	605
Firm power commitments	568	568	560
Surplus firm power	0	0	45
Firm power deficiency	116	5	0
Peaking power available	0	0	55

[1] Assumes median water conditions in each year from 1957 up to and including the year for which the figures are given.

[2] Assumes median water conditions in 1957 and each later year up to the year in question, with adverse water conditions in that year.

Mr. TROMMERSHAUSEN. In connection with the substantial deficiencies shown under adverse water conditions in the table above, it is to be noted that adverse water conditions are continuing in the Missouri Basin and, as Assistant Secretary F. G. Aandahl points out, the deficiencies could actually be greater than shown. I want to add here that the advice that we are giving to our clients is that it appears that, as far as the power users are concerned, they can consider that they are under adverse water conditions until the main-stem reservoirs are filled.

Senator CARROLL (presiding). Do you care to make any comment, referring back to your testimony on page 7, where you suggest to the committee that they find out from the Federal agencies operating the Missouri River system why the present method of operation is producing such large quantities of dump energy? Do you have any ideas about that yourself, as to why they are doing this?

Mr. TROMMERSHAUSEN. No; I do not, sir, because, in the short time available for our studies, the waterflow records and the manner of operation of the individual plants and reservoirs were not made available to us. It is an analytical job that can be done very easily by the Corps of Engineers and the Bureau. I think that they would be most happy to cooperate in answer to that question. That was one of the matters put to us by our clients. I could only answer it by comparison, sir.

Senator CARROLL. Thank you.

Mr. TROMMERSHAUSEN. It is to be noted that the power-marketing policy of the Bureau of Reclamation does not provide for a continuing and ever-increasing supply of firm power for the preference customers with which to meet their future power requirements on an assured and orderly basis.

I think everyone understands the basis for that. On the one hand, the Federal Government needs a market for the power produced by the Missouri River project in order to provide a stable financial base

for repayment of a substantial portion of the project costs. On the other hand, the preference customers, who are expected to purchase this federally generated power, are continuing to be faced with both a limited and an uncertain power supply.

I think the testimony of the last 2 days has borne that out.

The preference customers, having a direct public-utility responsibility to their own customers, need to purchase their firm power supply on a more orderly basis or begin installation of generating units of their own, either on an individual basis, which may result in higher cost power, or on a more economic joint basis with adjacent systems. There has been no real incentive to do this under present marketing policies, as the Federal Government has continued to hold out some hopes that additional amounts of low-cost power would be available in perhaps 1, 2, or 3 years.

That is borne out by Assistant Secretary Aandahl's letter, in which he discusses the availability of power perhaps in 1960, 1961, and 1962.

It is also noted in the various reports studied that water depletions through anticipated consumptive use will have a material effect on the production of firm energy on the Federal system. According to the Adequacy of Flow Report of the Missouri Basin Interagency Committee on April 1951, the water depletions can reduce energy production by as much as 25 percent in the next 40 years. This factor merits real consideration in long-term power planning.

It is also noted that the Missouri Basin Interagency Committee's May 1953 report entitled "Power Requirements and Supply, Missouri River Region" makes the finding that the region's power supply will be adequately served through 1970. I would point out that in the testimony you heard yesterday and today there appears to be some question as to whether the private utilities are going to have enough power to meet their own needs and the supplemental power requirements of nearby preference agencies who need more power.

Senator CARROLL. Will you explain for the record what you mean by water depletions through anticipated consumptive use? What do you mean by that?

Mr. TROMMERSHAUSEN. The term "consumptive use," as I have understood it here, is the water that is taken from the reservoirs for industrial, for municipal, for farm use, for irrigation use, so that it is not available in the reservoirs to go through the generators to make power. In that reference only do I refer to that.

Senator CARROLL. Do you think that those water depletions will be so great as to reduce the energy production by as much as 25 percent in the next 40 years?

Mr. TROMMERSHAUSEN. Sir, that is an analysis made from a table contained in the report. That is not my own calculation.

Senator CASE. Mr. Trommershausen, do you consider the use of water for the generation of electric energy as a consumptive use?

Mr. TROMMERSHAUSEN. Senator Case, you are asking an engineer to perhaps move over into a legal field. I have never considered that question until it was debated here yesterday.

Senator CASE. When the question was up here yesterday, somebody, I think, said that would be going into semantics. If the lawyers can-

not answer it and the engineers cannot answer it, what do the rest of us do?

Senator CARROLL. As I recall, Senator Case, Senator O'Mahoney said that when they used the phrase in the O'Mahoney-Millikin amendment of "beneficial consumptive use," they used it in a sense that it would be normally used. In law, we would say "beneficial use." "Consumptive use" was not to be definitive, as I understood it. That is one of the reasons I asked the question of what the witness meant by "consumptive use."

Your consumptive use was the application of water for industrial purposes or farming purposes, which would be a withdrawal of it for energy purposes.

Mr. TROMMERSHAUSEN. Yes, sir.

Senator CARROLL. It is my understanding from Senator O'Mahoney's definition that that was not the purpose, the intent, and the meaning of the "beneficial consumptive use" as set forth in the O'Mahoney-Millikin amendment. I seek to make that distinction.

Senator CASE. The reason I raise the question here is because now we find the engineer using the term of "consumptive use." In what sense is consumptive use here employed?

Mr. TROMMERSHAUSEN. I would say that the term "consumptive use" is used in the same reference that it is used in the adequacy flow report, and I simply wanted to point out in working out this 25 percent figure, that from the standpoint of the power users, sir, they should face the fact that in planning on this Missouri Basin system as a long-term power supply, the energy portion of their purchases could be reduced in the years ahead and that would have a bearing on alternate power supply arrangements they might make.

Senator CASE. Would the same consumptive use have an effect on the water available for navigation?

Mr. TROMMERSHAUSEN. Sir, if the water was taken from the reservoirs, and could not pass through the generators—was not available to pass through the generators—it would not be used downstream to maintain a 9-foot channel.

Senator CASE. So the water used in irrigation, at least to the extent that it did not come back to the stream in return flow, or water used for industrial purposes or for domestic purposes that did not come back to the stream, would be a consumptive use that would result in depletions for the production of energy or for navigation?

Mr. TROMMERSHAUSEN. Senator, I would like to answer the question by stating that the table that I used to make the 25-percent calculation is on page 79 of the adequacy flow report, in which it sets forth the estimated annual generation under the four stages of this program, through the year 2000. It uses the words:

> The water requirements for the generation of electric power are not consumptive in nature, except for relatively insignificant reservoir evaporation losses resulting from the ponding operations for power purposes. The potential hydroelectric output of the six mainstem projects for the four levels of basin development which have been analyzed are presented graphically on a year-to-year basis in the foreplates at the end of this report. The gross average generation is as follows:

Senator CASE. Who made that study?

Mr. TROMMERSHAUSEN. That is the interagency study, sir, the Missouri Agency Interagency Study.

Senator CASE. The Missouri Basin Interagency Committee?

Mr. TROMMERSHAUSEN. Committe, that is right, sir.

Senator CASE. Does that committee have any legal standing?

Mr. TROMMERHAUSEN. I cannot answer that question. I did not look into that phase of the problem.

Senator CASE. It is not created by law, is it?

Mr. TROMMERSHAUSEN. Sir, I cannot answer that, because I did not check it.

Senator CASE. Mr. Chairman, I would like to ask General Person or General Galloway a question.

Is the Missouri Interagency Basin Committee created by statute, or is that an arrangement of convenience among the several Federal agencies and the States?

Maj. Gen. GERALD E. GALLOWAY. It has some legal background, I believe.

Mr. WENDEL JOHNSON. The Missouri Basin Interagency Committee was established under a charter from the Federal Interagency Committee. It only has that background.

Senator CASE. I think for the purpose of the record you should identify yourself.

Mr. JOHNSON. My name is Wendel Johnson. I am Chief of the Engineering Division, the Missouri River Division, Corps of Engineers.

Senator CASE. Does the Federal Interagency Committee have statutory authority?

Brig. Gen. JOHN L. PERSON. No, sir; it does not.

Senator CASE. So this finding, whatever it was here, would not be binding as an interpretation?

General PERSON. That is correct, sir. The interagency committee is a voluntary grouping of the State and interested agencies.

Senator CASE. That answer, I believe, should be identified as coming from General Person, Assistant Chief, Corps of Engineers, Washington.

The first answer, I believe, was given by General Galloway.

Senator CARROLL. Do you wish to proceed?

Mr. TROMMERSHAUSEN. I was making reference to the powerload forecast.

This finding is based on an average annual rate of load growth of 5½ percent per year, a figure which we believe to be unduly conservative for planning purposes if an assured and expanding power supply is made available at lowest possible cost. In our opinion, utilities in the Missouri Basin should plan on a load growth not less than the 8 percent per year as estimated for the Nation as a whole for the next decade by the Electrical World in the September 1956 issue. To the extent that the actual load growth over the term exceeds the 5½-percent estimate currently used in the Missouri Basin, which it is bound to do, the deficiencies in power supply will be further increased.

Now I wish to go to the next section, future considerations for expansion of the power supply features of the Missouri Basin system.

After reading all of these reports, it was our impression that it may be desirable to reorient the power supply arrangements toward a more consistent pattern. Although all leading authorities have recommended the installation of large, modern, high-pessure, high-tempera-

ture steam-electric generating plants to be operated in conjunction with Missouri River hydroelectric power, this phase of the region's development program has lagged considerably behind, with the consequence that the region has not experienced the impetus through further industrial development in these characteristically agricultural States that was originally expected from the Government's construction program.

We have been requested to offer suggestions and recommendations on a future course of action for the cooperatives as regards their relationship to the Federal power program and in so doing we find that our suggestions which follow must quite necessarily be general since we have not had the time to undertake detailed analyses and engineering studies concerning the most advantageous use of water releases of the Missouri Basin. Our suggestions, however, are based on concepts which are sound and have a basis in actual practice in the electric industry.

I might say that the group that we represent, this group of rural cooperatives, is a rather diverse group, and the recommendations that we have made are our own independent recommendations. It may be that not all of the cooperatives would agree, in full, with the recommendations we have made.

I just want to make that statement for the record, that these are our independent recommendations, offered for consideration with the hope that a little less confusion can be obtained, at least by the cooperatives purchasing their power supply in the Missouri Basin.

The first phase is allocation of federally generated power. We found that the reports generally recognized that the amount of Federal hydroelectric power that can be developed in the Missouri Basin, estimated generally to be approximately 2,500,000 kilowatts under the authorized program plus an additional potential of some 2 million kilowatts at such time as it becomes feasible to construct additional downriver main-stem plants between Sioux City and the mouth of the Missouri River will not be sufficient to meet the long-range firm power requirements of the Federal installations and the preference customers.

May I add that there has been some discussion today about slack water navigation. The only reference that we could find in our reading was a short reference to the 2 million kilowatts of potential power in that reach of the river as contained in the 1950 report, Ten Rivers in America's Future, by the President's Water Policy Committee.

In view of the fact that the Federal supply cannot meet the full requirements of the preference customers it seems appropriate for the Federal Government to make some tentative long-term allocations for the Missouri Basin, a practice that the Bureau has been reluctant to consider.

Such power allocations, even though they be subject to some change or modification as the program continues to expand, are quite worthwhile as such allocations would serve to point out the area of responsibility of each utility in the matter of providing a much-needed supplemental firm power supply.

It is obvious that a supplemental power supply will be needed in many parts of the Missouri Basin. It would be most helpful, it seems to us, if the preference customers had some idea of what the problem

was they had ahead of them. It seems that the way to approach the problem is to make the allocations from the Federal system. I would anticipate that that would create some problems, because when you are sharing the shortages, as you have to do in this situation, some groups would feel they were not getting their share.

The tentative allocations, we believe, should be made with respect to all classes of power expected to be available from the Federal system. In addition, a reaffirmation that public preference extends to use of capacity in the Federal transmission system as well as to power supply would make it much easier for all of the utilities to plan for the additional transmision facilities that will have to be constructed by all of the utilities in the region.

Senator CASE. I noticed in the earlier part of your statement you referred to the construction of transmission lines, and again here. At the time that the Flood Control Act of 1944 was under consideration, when the original Pick-Sloan plan was under consideration, there was an amendment proposed in the Senate, by Senator Bailey, which would have restricted the disposal of the power to the dam site, which I remember opposing at the time. That is, we did not have it in the House, but it was proposed in the Senate.

When the Bailey amendment was rejected, the language was put in section 5 of the bill that the Secretary of the Interior is authorized from funds to be appropriated by the Congress to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said projects available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately owned companies.

In your study of this wholly related matter, and in the consideration you have given to the transmission lines, would you say that the purpose of the provision I have just read has been met?

Mr. TROMMERSHAUSEN. I would answer that in a general way, sir, that it has. I would raise a further question as to whether the transmission planning was broad enough to do the entire job of the Missouri River. I might digress here to state I have had 16 years' experience as a power engineer and construction engineer, district manager and area manager, with the Bonneville Power Administration. I have been associated with high-voltage and high-capacity transmission lines during that period.

The Bonneville transmission network was built by comprehensive analyzer studies, and they were studies looking into the future, so you could move large blocks of power.

It just seemed to me that to make the 2½ million kilowatt Missouri system work, the upper system, if you had the equivalent of 2 double circuit 230 kilovolt transmission lines going from the Fort Peck area clear down to the Omaha area, and eventually even beyond, connected to all the main-stem dams, to all the major power systems, and to that high capacity transmission network you could connect large, modern steam plants at points nearest the fuel supply in North Dakota, in Montana, perhaps in Kansas, and in Iowa, that in that manner such an equivalent transmission line could have been used to take power in all directions.

I would venture to guess that in another 10 or 15 years it will be necessary to even yet construct an equivalent of two 230-kilovolt lines all the way from the Fort Peck area down to the Omaha area. I am not raising the question of whether they be constructed by the Federal Government or by the arrangements that this language suggests, that they be done by public and private corporations. But such main transmission lines, in our opinion, would be most helpful to a solution to the problem that faces the Missouri Basin.

Senator CASE. Does Bonneville construct lines for retail distribution?

Mr. TROMMERSHAUSEN. No, sir. Bonneville sells power only at wholesale. My last recollection was that they are not constructing any lines with a voltage lower than 110,000 volts as of now. The lines with voltage lower than that are constructed by the purchaser.

Senator CASE. By the purchaser? By REA's; by private companies?

Mr. TROMMERSHAUSEN. Public agents, municipalities, and power districts.

Senator CASE. That would be consistent with the provision of the language in the basic act.

At that time, the issue was not between a general construction of service lines, but it was between the Bailey amendment, which would have restricted the sale of power to the dam site, and whether or not there would be the authority to construct transmission lines to transmit the power and make it available in wholesale quantities.

The Bailey amendment was rejected, but this other was put in.

Senator CARROLL. While you are on that subject, you have examined the transmission lines, have you? You are familiar with the transmission lines?

Have any transmission lines been constructed on this project, Senator Case, so far?

Senator CASE. Yes; there have been some.

Mr. TROMMERSHAUSEN. Sir, the only examination I have made is from this 1956 report which I referred to previously. This is the latest, up-to-date transmisison map that was made available for our study.

Senator CARROLL. Are there any such lines as you have just described?

Mr. TROMMERSHAUSEN. In part, yes.

Senator CARROLL. What you are recommending is an extension of those lines, to use the two circuits; is that correct?

Senator CASE. I think there is only one 230-kilovolt line now. I am not an authority on that. I do know that there is some 230-kilovolt construction between the main dams.

Mr. TROMMERSHAUSEN. Senator, what I am suggesting is that these transmission lines cost many millions of dollars, and, therefore, a determination as to where they would go and the scope of them should be based upon an a. c. analyzer network study. I am just suggesting in general terms that a large, high-capacity backbone line which would cross these coalfields and tie these plants together would obtain for you this balance between hydropower and steampower which you have been seeking for the past 10 or 15 years.

Senator CASE. Let us make one specific question of this. This morning we had a gentleman from Montana who was pointing out an area between Canyon Ferry and Great Falls, I believe, where he said that the Canyon Ferry power was locked up.

Would some provision that public preference extend to the use of capacity in the Federal transmission system as well as power supply unlock that Canyon Ferry power for the Montana group who had a representative here this morning?

Mr. TROMMERSHAUSEN. Senator Case, I have not studied in detail the existing facilities of the Montana Power Co., which, I understood here, are used to get the Canyon Ferry power into the network. If, instead of the wheeling arrangement now in effect, you had a high-capacity Federal transmission line, Canyon Ferry power would be available for the rest of the preference customers in Montana.

As to whether or not the present Montana Power Co. transmission line has adequate capacity to do the job everybody expects of it, I could not answer that, sir, without further study.

Senator CASE (presiding). Mr. Trommershausen, you may proceed.

Mr. TROMMERSHAUSEN. The next item is use of federally generated hydro power.

The published reports indicate that the anticipated water depletions, as well as those which cannot reasonably be foreseen at this time, will result in a decrease in the firm energy that can be produced from the Federal system. It seems that in order, therefore, to work out a plan involving an orderly transition from the sale by the Federal Government of substantial quantities of firm load-factor power to the sale of lesser amounts of firm load-factor power and the sale of more peaking capacity, the peaking capacity would be firmed up by the ever-increasing thermal-general electric power which must be installed in the region.

May I point out that that recommendation calls for a rather comprehensive study, Senator Case. It is a study that should involve all the agencies in the basin.

The cooperative which employed us hoped that we could do it. It takes considerable manpower. It was my recommendation that the farmers of South Dakota should not underwrite the expense of that study. It would be better if the study were made cooperatively with the entire group, because then it could be better understood and perhaps better accepted.

Senator CASE. Do you think that that study should be made on a basinwide basis?

Mr. TROMMERSHAUSEN. Yes, sir.

Senator CASE. At one time I advocated that we in South Dakota develop a pool system modeled after the Bonneville plan, but, unfortunately, I thought, it was not accepted. I think we are moving toward something of that sort; that is, there has to be some integration of your power-producing facilities if you are going to have any standby.

Mr. TROMMERSHAUSEN. It is my conviction that power-marketing studies may show that the ultimate capacity of the Federal hydro system in the Missouri Basin will eventually find its greatest use and value when used as peaking capacity for an integrated regional power

network owned and operated by the Federal Government, cooperatives, municipalities, power districts, and the private utilities.

If substantial agreement can be gained on the eventual use of the Missouri hydroelectric plants and associated and valuable reservoir space as power-peaking resources, all of the cooperatives and public and private utilities can then proceed in an orderly manner to turn their technical and management skills and credit, which is important, toward the financing and construction of the large, modern thermal-generating plants, which plants must, in our opinion, provide the basis for supplying the region's expanding power requirements.

The power-marketing concept outlined herein merits further studies under the sponsorship of the Federal Government in cooperation with all of the cooperative, municipal, and private utilities in the region.

USE OF THE FEDERAL SYSTEM AND TRANSMISSION NETWORK

As the use of the Missouri Basin power-supply system moves forward, it seems appropriate to give consideration to the policies involved in the use of the Federal generation and transmission facilities as the nucleus of a regional power pool. In order to attain the optimum development in the Missouri Basin, it seems advisable to couple together a realistic program of making allocations of federally generated hydroelectric power on a long-term basis and a broader use—I emphasize that—of the Federal transmission system by the customers of the Bureau of Reclamation for the sale and interchange of power and energy from their own generation.

To effectively facilitate the financing and operation of the large quantity of steam-electric generation that will have to be added by both public and private utilities and promote broader understanding in the Missouri Basin, the following arrangements in our opinion may logically be considered by the Federal Government within the general framework of the present congressional power policy:

1. Sell peaking capacity, with or without associated energy, to those utilities which can make effective use of such capacity in conjunction with new steam-electric generating installations, giving recognition to the usual preference provisions.

2. Sell secondary and dump energy for use as fuel displacement, giving the usual preference to the use of such energy with newly constructed steam-electric facilities by cooperatives, municipalities, and power districts.

3. Enter into standby and emergency agreements with all cooperatives, municipalities, power districts, and private utilities in the region in order to facilitate the installation of modern steam-electric generating units in the most economical size by reducing the amount of generating reserves required on each individual system.

Senator CASE. What has been your observation in the Northwest of the possibility of private utilities working with cooperatives, municipalities, and power districts in pooling their reserves?

Mr. TROMMERSHAUSEN. Sir, the Northwest power pool in itself, the basic concept, is a pooling of reserves. The Bonneville Administration has as a matter of long standing practice, entered into standby interchange contracts, with customers of generation.

Senator CASE. Has it worked successfully?

Mr. TROMMERSHAUSEN. Yes, sir.

Senator CASE. Have the private utilities and the cooperatives and the public power districts been able to work together harmoniously?

Mr. TROMMERSHAUSEN. It has not been necessary for the public agencies to yet make arrangements with private utilities for reserve capacity, because of the Federal system, which will supply through 1963 or 1964 the full requirements of the preference customers. They have been getting their reserves from the Federal system. They are going to have to move into that same problem, sir, when the Federal supply in the Bonneville area no longer meets the needs there.

Senator CASE. How much of an area does the Northwest power pool embrace?

Mr. TROMMERSHAUSEN. It embraces all of Oregon, all of Washington, the northern part of Idaho and western Montana, and within the last year there has been an interconnection with southern Idaho, although southern Idaho is not considered as a part of the Columbia River marketing area. It is connected through one of these very same emergency standby and interchange agreements. There is such an agreement in effect between southern Idaho and the Bonneville area.

Senator CASE. Who makes the determination as to what reserve generator would come into play when a demand arises?

Mr. TROMMERSHAUSEN. The Northwest Power Pool.

Senator CASE. Do the cooperatives, the public bodies and private utilities all have representation in the power pool, in the management?

Mr. TROMMERSHAUSEN. Sir, the Northwest Power Pool is a voluntary arrangement, and it is working very well on a completely voluntary basis. The members of the pool are those with substantial quantities of generation. So the cooperatives, who do not have generation in the Pacific Northwest now, are not now members of the pool. They are dependent 100 percent upon purchases from the Bonneville Power Administration. They are going to be faced with this same problem when they are required to put in generation of their own in the mid-1960's.

Senator CASE. How long has the Northwest Power Pool been in operation?

Mr. TROMMERSHAUSEN. As I recall, the Northwest Power Pool was created by an order of the War Production Board. It must have been in 1942 or 1943.

Senator CASE. Does it have anything to say with regard to the amount of water that is released or put through the Government owned generators?

Mr. TROMMERSHAUSEN. No, sir.

Senator CASE. Is it purely, then, a marketing agency?

Mr. TROMMERSHAUSEN. The Corps of Engineers and the Bureau of Reclamation operate the Federal plants on the Columbia River. The Northwest Power Pool, of which the Bonneville Power Administration is a member, coordinates the operation of all of the other associated steam and hydroelectric plants with the Federal system, so that the best use is made of every acre-foot of water that comes down the Columbia River.

It is an arrangement whereby if it rains over on the coast and water would go to waste on the coast, and there is space back of the

Federal reservoirs, the power units on the coast would be operated to their maximum, and Bonneville and McNary would hold back, using the waters on the coastal streams, and then the Bonneville would repay.

Senator CASE. Who makes the determination that that will take place?

Mr. TROMMERSHAUSEN. The dispatchers of the Bonneville Power Administration and the other members of the Northwest power pool.

Senator CASE. You have heard the testimony here during these hearings that one of the problems in the minds of some of the witnesses grows out of the fact that the engineers regulate flow of the stream and the Bureau of Reclamation or the Department of the Interior sells the power.

Mr. TROMMERSHAUSEN. Yes.

Senator CASE. But according to your testimony you have that same division of authority in the Northwest.

Mr. TROMMERSHAUSEN. Except, sir, we do not have the navigation problems to the extent you have them in the Missouri Basin.

Senator CASE. But you do have the reservation of space for flood control storage.

Mr. TROMMERSHAUSEN. Yes, sir. To the best of my knowledge, that has presented no problem in connection with power generation in the Pacific Northwest.

Senator CASE. Of course it would not create the water demand, provided you had other sources for generation of the power. That is, no damage or injury occurs or comes to anyone if there is an adequate supply of power to replace what is not being generated by holding some of the water back.

Mr. TROMMERSHAUSEN. That is right. And along with that, you need an entirely adequate transmission system so that you can flow the power both ways, and make up a deficiency from one area to another area. That is why I emphasize how important it is. In the beneficial operation of a river, and in order to let the watermaster have some control about how he releases the water, it is necessary for him also to have sufficient transmission capacity so that he can do that. I can foresee that it is possible that you lose some of the flexibility in the Missouri Basin, and perhaps the Corps of Engineers could testify to that, that perhaps they have in the past had some inflexibility in their operation because of lack of transmission capacity.

Senator CASE. That certainly would be one possible source of lack of flexibility. But we also have it, I think, in that at the present time we do not have these generators downstream that would come into play by using the water that falls there as you do in the Northwest, where, you say, if the rain comes on the coast, you can use the generators there and hold back upstream.

Mr. TROMMERSHAUSEN. Yes, sir.

Senator CASE. I am very much interested in your statement.

You may proceed.

Mr. TROMMERSHAUSEN. Four. Authorize the use of the Federal transmission network as a "common carrier," and I use the term "common carrier" because it seemed to me to describe what we have in mind. Perhaps you do not want to go that far. The Federal network could be used as a common carrier under appropriate con-

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tracts and with full recognition of the usual public preference provisions with respect to transmission line capacity to facilitate power and energy and thereby give incentive to the installation of the large, economic steam-electric generating plants which will be necessary in order to provide lowest-cost power for the entire region.

Many of the public agencies, individually or as integrated groups, may want to take turns, and I think they should, adding new generating capacity and will find the use of capacity in the Federal transmission system most helpful in selling and making delivery of the surplus power and energy to other groups.

That is a very important concept, because to satisfactorily finance a new major steam plant, you need a market for it. If your neighbor is short, and he is willing to buy from you your surplus power for 3 to 5 years, you can finance it on much more favorable terms. As I indicate here, perhaps by arrangement he would build the next plant and you would reverse the flow of power over the Federal system, and one group would buy from the other.

As most individual utilities wish to preserve their "home-rule" status by being substantially independent in the matter of availability of power supply within economic limits, the power-pool concept contemplated herein would enhance the desire of all parties to participate in the ownership, construction, and operation of additional power supply and transmission facilities; especially when the power pool establishes a market for such surplus power as may be available for certain periods of time as new generating units are sized realistically to future needs in order to take advantage of the inherent economies of the larger-size installations. It is certain that the capital requirements for future power supply installations of all utilities can be kept to a minimum through the power-pool concept, which factor is important if the objective of providing the lowest-cost power to the ultimate consumer in the Missouri Basin is to be realized.

Senator CASE. I might observe at that point that we do have one illustration in South Dakota operations where the taking turns exists between an REA group and a private power company. I have reference to the operation at the Osage plant of the Black Hills Power & Light, where the Rushmore G. & T. has installed generator capacity which is maintained by the Black Hills Power & Light under an agreement that the co-op has the first claim on whatever power is produced in that unit, but that any power for which they do not have an immediate need the Black Hills Power & Light takes it off their hands. That is an illustration of this cooperation in the development of steam electric generating plants which illustrates the suggestion you have made here.

Mr. TROMMERSHAUSEN. Thank you, sir.

Under the power-pool concept outlined above, there appears to be justification for the construction by the Federal Government, or perhaps by one or more public agencies, of a 230-kilovolt interconnecting transmission line between Wyoming and South Dakota in order to fully and effectively integrate the Colorado and Wyoming upstream generating facilities with the main-stem Missouri River generating facilities. Such a transmission line would also put the Wyoming coal fields within reach of substantial power markets.

In addition, the construction of a 230 kilovolt or higher voltage interconnection between the Missouri Basin system and the Columbia

River system would prove to be beneficial to the utilities served from both systems and would spread the broad benefits of such major system interconnections in the most equitable manner.

With respect to estimates of future load growth it is noted that on page 23 of the May 1953 Report on Power Requirements and Supply, Missouri River Region, prepared by the Missouri Basin Inter-Agency Committee, Subcommittee on Electric Power, the normal increase in load is estimated to be at a rate of approximately 5½ percent in the period 1956 to 1970. This rate of load increase appears to be very conservative, and we feel that it is unrealistic for broad planning purposes. It has been our experience that load forecasts reflecting confidence in an area's future, result in sounder plans for the expansion of generating and transmission facilities, for too often inadequate plans have been made, resulting in the installation of new facilities having too little capacity.

COST OF STEAM-ELECTRIC POWER AND ENERGY

The estimated costs of producing power and energy in thermal-electric generating plants included in the July 1951 report of the Bureau of Reclamation entitled "Power Resources Requirements and Supply in the Missouri River Basin" appear to be well founded, but quite conservative. The report can serve as a guide to those publicly owned utilities planning to construct new, modern, steam-electric generating plants. Based on the costs of the Lexington, Nebr., 100,000-kilovolt-ampere steam plant under construction by the Central Nebraska Public Power and Irrigation District and the 750,000-kilovolt-ampere plant under construction by the city of Memphis, Tenn., the estimate of $225 per kilovolt-ampere of installed plant capacity used by the Bureau of Reclamation engineers in the 1951 report may prove to be too high even under present costs. Likewise, the thermal efficiency of 12,500 B. t. u. per net kilowatt-hour generated used in the Bureau of Reclamation studies is conservative, for considerably better heat rates can be expected for the base loan operation which will soon be the accepted method of operation of such plants in the Missouri Basin.

With respect to fuel costs, we have been advised that recent studies on the use of Dakota lignite indicates that the cost of lignite fuel for a thermal plant may be less than one-half the cost of such fuel as reported in the previous Bureau of Reclamation studies. Giving consideration to this new development, and the other factors noted above, there are indications that the cost of generating power in an REA financed modern steam plant operating on base load using lignite for fuel, near the mines and taking full advantage of the dump energy available from the Federal system for fuel displacement, may compare favorably with similar firm power purchased from the Federal system.

It is strongly recommended that the various groups of REA financed cooperatives in the Missouri Basin undertake studies for a selected group of new steam plants, giving consideration to fuel supply, cooling, and boiler feedwater supply and proximity to the high voltage transmission lines of the Bureau of Reclamation for in so doing they will find ways of utilizing substantial quantities of dump and peaking power now available from the Federal system.

RELATIONSHIP OF POWER AND NAVIGATION

In order to determine the amount of water available for power production, it would be appropriate to again establish, from the latest available information, the minimum requirements for the various uses of water. The existing reports do not now clearly define what these minimum requirements shall be, nor do they specifically define the manner of operation of the system which will sustain the highest system output for both power and navigation. The report on adequacy of flows in the Missouri River dated April 1951, prepared by the Missouri Basin Inter-Agency Committee, sets forth flows at Sioux City, which are "considered adequate" for navigation, of 25,000 cubic feet per second "without excessive dredging" and 30,000 cubic feet per second "with nominal dredging."

These minimum flow requirements for navigation should, in our opinion, be clarified since preliminary studies which we have made indicate that there is a possibility that perhaps as much as 1 billion kilowatt-hours of electric energy during an adverse water period would be transformed from firm energy to secondary energy by increasing the navigation release from 25,000 cubic feet per second at Sioux City to 30,000 cubic feet per second. The net effect of such an operation is to reduce the power revenues by as much as $2 million a year during a repetition of the adverse water period, which revenues are expected to repay a substantial portion of the costs of the Missouri River Basin project. Such reductions in the amount of firm energy from the Federal system make it necessary for the preference customers, having firm power contracts with the Bureau of Reclamation, to purchase higher cost, steam-generated energy from others in order to meet their loads.

The preliminary studies of streamflows and storage which we have made indicate that during a repetition of the cycle of the worst water conditions of record, the regulated annual discharge of the Missouri River at Sioux City would be 18,360,000 acre-feet per year, without regard to consumptive uses and evaporation from the reservoirs. This discharge represents the average annual discharge at Sioux City that could be maintained, assuming that all of the main-stem reservoirs, both existing and under construction, were filled at the start of the historical critical period of July 1929 through June 1948. If such a critical period were to repeat itself, with the storage now existing, the average discharge mentioned above would, of course, be reduced.

The report on Adequacy of Flows in the Missouri River, dated April 1951, prepared by the Missouri Basin Interagency Committee, sets forth on page 4 of the Annual Requirements as Affecting Flows at Sioux City, for all uses including upstream depletion, main-stem reservoir evaporation and downstream requirements, defined in the report as "public health and stream sanitation, and navigation based on 8 months' navigation season and maintenance of a flow of 25,000 cubic feet per second, which is considered adequate," 16,530,000 acre-feet in 1960, increasing to 22,746,000 acre-feet by the year 2000. These annual requirements would be increased to 18,735,000 acre-feet and 24,951,000 acre-feet respectively if a navigation flow of 30,000 cubic feet per second is maintained.

The availability of sufficient water to meet the above requirements was only demonstrated for better than adverse water conditions in

the reports that we have studied. We therefore recommend that further detailed studies be undertaken to ascertain the water-use allocations that could be made under adverse water conditions, taking into account all of the factors commonly used in plans involving the use of water resources, particularly those uses which are productive of revenue for the Federal Government. This latter point is especially important when consideration is given to the fact that power revenues are expected to carry a major part of the repayment burden of the multibillion dollar Missouri Basin project.

Senator CASE. Mr. Trommershausen, you may proceed with any other testimony you have in mind.

Mr. TROMMERSHAUSEN. The first question from a client of mine is a question of power for summer pumping use. You will recall one of the witnesses from Iowa desired to purchase secondary power for pumping. In studies that I have made in Nebraska in the past 18 months, I note that there is an extensive use of pumping from wells. In papers I have read, such use is also continuing at an increasing rate in Kansas.

Virgil Hanlon indicated that South Dakota is showing an interest in pumping from the ground to supply irrigation systems.

I think there was an important statement this morning that the secondary power does not have to be guaranteed 100 percent of the time in order to be effective for summer use. It has been traditional with the Bureau of Reclamation that they not sell secondary power to those utilities who do not have generation that could back it up.

I just offer here the suggestion to the engineers of the Bureau of Reclamation that it is possible to contract for the sale of power in any manner you wish to. If the farmers will agree that blocks of secondary power at from 80 or 90 or 95 percent of the time for the irrigation season is satisfactory for them, that they will not come back on the Government to make up any deficiencies, they should be given the right to use secondary power, to purchase and use secondary power, for pumping. That secondary power which comes as a result of the navigation program is used at about the same time that the farmers need to pump this water on the land.

I think that it can be of real service to the pumping farmers, by trying to work out arrangements whereby you can use the summer secondary power for pumping under appropriate contracts.

Another question that was put to me for answer was: On the basis that approximately 1,100 million kilowatt-hours could have been generated and sold by water which bypassed the generators over the past 3 years——

Senator CASE. How much was that?

Mr. TROMMERSHAUSEN. 1,100 million kilowatt-hours. I can't check that figure. They asked me to evaluate what that would mean in the terms of power revenues. In taking it back to the sales made by the Bureau of Reclamation in 1956, according to the letter which is earlier in my testimony, if that ratio holds, the firm portion of that at 5.5 mills would have been worth about $3,300,000, and the secondary portion about $1,200,000, or a total value of that unused water related to terms of power over the past 3 years would have been about $4.5 million.

Senator CASE. What would have been the source of the water for that power generation?

Mr. TROMMERSHAUSEN. Water that bypassed the generators. I have not had access to the records to check the amount of water that was bypassed, or why it was bypassed. I was just asked the question to evaluate it.

Senator CASE. How much that power would be worth in terms of the price that it could have gotten had the power actually been there, yes.

Mr. TROMMERSHAUSEN. That is right.

I would like to direct the committee's attention to a statement in the April 1951, report on the adequacy of flows in the Missouri River, because I think this report perhaps needs to be gone over again. It serves as a guide to the watermaster. Since the wording is important, I will read from section IV of that report:

> On the basis of continuing reconnaisance and hydographic surveys on the completed reaches of the project and actual operating experience on traffic on the river, indications are relatively firm that a flow rate of 30,000 cubic feet per second at Sioux City will permit satisfactory 9-foot navigation with nominal dredging, and that navigation will be practicable with flows of 25,000 second feet at Sioux City under stable flow conditions without resorting to excessive dredging.

A table follows on the page headed "Annual Requirements as Affecting Flows at Sioux City for the Period 1960–2000." The table is based upon the maintenance of navigation flows of 25,000 cubic feet per second at Sioux City.

The footnote of the table says:

> Based on 8 months navigation season and maintenance of a flow of 25,000 second feet which is considered adequate. A flow of 30,000 second feet which is considered desirable would increase this requirement by 2,205,000 acre-feet.

It seems to me here that in my mind the question would be raised: Are we seeking at this early stage a satisfactory navigation channel, a satisfactory flow, or a practicable one?

If you are working a practicable navigation program, to me the word "practicable" connotes that you have to make some economic analysis to determine what is the best use of this water. It has this effect: In an adverse water year, the difference between 25,000 second feet at Sioux City and 30,000 second feet at Sioux City has the effect of turning about a billion kilowatt-hours from firm energy to dump energy. That is worth, on the present rate schedule, about $2 million a year. It has the other problem which faces the Bureau of Reclamation as marketing agent, in that by that use of water, you move a billion kilowatt-hours a year from the preference category to the non-preference category and it goes to a different customer.

In connection with the effect this might have had on your present situation, in the same report, on page 78, in which they talk of the degree of fulfillment of water requirements, it is indicated that in future years, as these water depletions occur, that it was anticipated that under certain conditions of depletion the navigation season, based upon waterflow studies, would be reduced in 2 years to 7½ months, in 3 years to 6 months, in 5 years to 4½ months. Under the fourth level, the studies that were made indicated that navigation could be reduced to as much as 4 months for periods of 13 years.

I think it would help in understanding this problem if an evaluation could be made about whether, during this early, most difficult stage of reservoir filling on the Missouri River, the period when there is a power shortage, and everybody needing power, a period of adverse water conditions, whether or not an attempt should have been made in years past to try to strive for an 8-month navigation season.

It is clear to me that if this report serves as a guide to the watermaster, there are going to be misunderstandings with the power users, because the determination of the releases is based upon some criteria set forth in this report.

I might also make reference to another point bearing on this same problem. The report is by the Missouri Basin Interagency Committee, dated May 1953, entitled "Power Requirements and Supply."

The Corps of Engineers give criteria for operating the system. I will not read them all. They are set forth on that page. The item 3 is the one that goes to the problem under discussion here:

> To pattern the releases from the lower end of the main-stem system to supply the requirements of public health and navigation with internal adjustments in the system to sustain the highest power output consistent with other functions of flood control, irrigation, public health, and navigation.

Those criteria are quite general, and it would seem to me that if they were expanded so that it could be clearly shown whether the use was consistent or not consistent, there would be greater understanding and harmony in the region.

I mention this on the basis that further efforts should be made to clarify this report.

It seems to me that this presents a difficult problem to the Bureau of Reclamation in trying to decide how much firm power energy it is going to have in any year in the future, as likewise it causes a problem for the Corps of Engineers to determine in adverse water conditions how much water you can release and still be consistent with the other uses. It is an extremely difficult problem. I confess I do not have the solution to it. All I can do is state that from my reading of this thing, I can understand how there would be misunderstanding and confusion.

Senator CASE. Thank you very much, Mr. Trommershausen. It is obviously a complex problem. We appreciate the information and observations you have given the committee.

The next witness is Mr. Snorri Thorfinnson.

Will you please identify yourself for the record and proceed with your statement.

STATEMENT OF SNORRI THORFINNSON, LISBON, N. DAK.

Mr. THORFINNSON. My name is Snorri Thorfinnson, and I am from Lisbon, N. Dak. I am a former county agent and agricultural teacher, and recently have been working on farm research, mainly in North Dakota.

I have been asked by the statewide REA to present this statement on irrigation needs.

I am a native of North Dakota and have lived there most of my life. At all times I have been interested in land-use planning, and in efforts to stabilize the agriculture of my State.

Those who live in an area blessed with an abundance of rainfall, may not realize how all-important water, just plain water, is to a State with an average of less than 20 inches precipitation a year. Water, or the lack of it, is the all-important element that can play havoc with the best laid plans of individuals and communities.

In the past, civilizations in areas of less than 20 inches, have failed. In lands like Egypt, Iran, and Iraq, desert wastes mark the location of once prosperous, thriving civilizations. In the thirties a lack of water over a period of years all but wrecked the economy of my State, leaving in its wake abandoned farms and ghost towns. I mention this simply to emphasize how important the water development of the Missouri Basin is to the economy of my State.

I have been asked by the North Dakota Association of Rural Electric Cooperatives to testify on the importance of an adequate supply of Missouri River water to the agricultural economy of North Dakota.

Future irrigation plans now being made in North Dakota in cooperation with the Federal Bureau of Reclamation indicate the possibility of irrigating more than a million acres by waters diverted from the Missouri. These irrigation areas are widely scattered throughout the eastern half of the State. If these plans are based upon a dependable supply of water, they can do much to stabilize our economy, not just to benefit farmers alone, but to insure the future of entire communities, in dryland-farming areas as well as on the irrigated areas themselves. If they are not based on a water supply that is dependable, irrigation projects could wreck our economy much faster than a drought can.

In years of drought we have again and again been forced to sell part or all of our breeding herds of cattle and sheep, because of the excessive costs of shipping in hay from other States. As a result, we often find ourselves with insufficient livestock numbers to make full use of our pastures and hayland during years of adequate rainfall. Too many farmers have gone out of the livestock business entirely and depend solely on grain crops.

Irrigated areas will stabilize the livestock industry by providing a sure supply of high-quality alfalfa hay, and in the years of abundant rainfall these same supplies can be the basis for the feeding of cattle and sheep. The smaller irrigated farms will mean a larger rural population and, in turn, more stability in the towns that service the rural areas. All of this hopeful future is dependent upon a supply of water, adequate to carry us through the periods when our rainfall is below normal.

Irrigation is an expensive undertaking. Not only must the water be pumped from the Garrison Reservoir, over the Coteau du Missouri, and led from there by canals and rivers to the irrigable soils, but the individual farmer must expend large sums for leveling his land, and for ditches on his own farm.

During the years when rainfall is normal, or above normal, the need for irrigation is not so great. During these years water must be

stored for future needs. Then, when the dry years come, there must be enough water above Garrison, and above Fort Peck Dam, to meet the human needs of the towns and cities downstream from the dams, to supply the water needed for irrigation, and to turn the dynamos at Fort Peck and the series of dams in North and South Dakota. In addition to these human needs are the needs for navigation, for wildlife and recreation.

The above needs require a tremendous amount of upstream storage. The irrigation of a million acres in North Dakota will require 2 million acre-feet of water annually, about 8 percent of the annual flow of the Missouri at Sioux City. South Dakota will have similar needs for the area that can be irrigated in that State.

The big problem of the Missouri is the wise use of its waters, use that will provide the maximum good for as many people as possible. If we dissipate these reserves, for navigation between Sioux City and Omaha, large numbers of people will suffer. If we permit our reservoirs to be depleted to a point where they can produce but half of their rated electric capacity, as is now the case at Fort Peck, we will not have the reserves needed to insure successful irrigation during the dry years.

There are substitutes for water in the production of electric energy, there are alternate means of transportation from Sioux City to Omaha, but there is no substitute for water in meeting the needs of people, whether it be for supplies of water for our cities, or for irrigation. If the economy of the Dakotas suffers from an inadequate supply of water, there won't be much left to ship down the Missouri.

Our land slopes to the south and east, except in the Red River Valley, so as far as North Dakota is concerned our water supply must be stored above Garrison and Fort Peck.

In summary, I would respectfully submit:

First, our long-range plans must give priority to human needs, to the water needed for domestic and irrigation purposes, for the years when the snowfall in the Montana Rockies is below normal, and the rainfall on the plains is inadequate. Any other sort of planning is asking for disaster.

Second, a careful, overall study of potential water supplies over periods of low as well as average precipitation must show that there is enough upstream supply and storage to meet fully the demands for irrigation and human needs, with sufficient head to operate generators efficiently.

Third, the cost of preparing a million acres for irrigation will range from 50 to 100 million dollars, this being in addition to the cost of bringing the water to the farm. Such an outlay of public and private funds demands the utmost in careful investigation and thorough planning. Let every drop of water be used as often and as efficiently as possible on its way from the Rockies to the gulf.

Fourth, provide safeguards to prevent depletion of our upstream storage for any purpose except urgent human needs.

One of the difficulties we have with the Missouri Basin is the fact that it is a long area. One of the problems between people in an area where water is surplus and the people that live in an area where water

is lifeblood, is maybe they do not always see the problem in the same light.

In North Dakota, the bulk of the State drains into the Missouri Basin. Most of our water goes down the Missouri. The Garrison Dam Basin, of course, is all in North Dakota, extending from a point a little north of Bismarck and eventually almost to the North Dakota and Montana State lines.

The main bases on which the whole Missouri Basin plan was sold to our State was on, you might say, three points: Relief for floods down below, water for power in a State that needed it, and water for irrigation. It is this latter point that I wish to discuss very briefly.

Our big problem in North Dakota is the uncertainty of rainfall. In the years when we do not get enough water to produce the hay and the grains required to keep our livestock, it has often necessitated selling off the breed stock. It is too expensive to ship in hay. So we look upon irrigation as the greatest safeguard we can possibly have in supplying us with a dependable source of forage that will at least make it possible for us to keep our breeding stock in the critical dry years.

Our irrigation, as I understand it, requires approximately 2 acre-feet per acre that is to be irrigated. In North Dakota, we are told by the Bureau that we have between 1 million and 1,800,000 acres that may be irrigated in the future. Plans are already being made, people have been asked to form districts, the districts have been formed, and in some places land values are already rising as a result of the anticipated irrigation.

Water for agriculture is definitely a human need. I think that when you are evaluating needs of the river, the important thing is to see that human beings get first consideration. That also includes, of course, the needs of cities for water supplies and for sewage disposal.

It would be a tragic thing if our plans for irrigation and our preparation for irrigation, with all the expenses involved, should be based on something that does not exist. We need water above Garrison Dam.

The only place for us to get water for irrigation is what comes from Fort Peck and Garrison. Once it has gone past Garrison, we cannot use it. Not only that, but we have to pump it over the rise of hills east of the Missouri and even at an 1,850-foot level it means pumping that water at least a hundred feet. As that level drops, the cost of pumping and, of course, the cost of irrigation, will rise proportionately.

Senator CASE. Would that apply to the water that it is proposed to bring into the James River and go through the Jamestown Reservoir?

Mr. THORFINNSON. Yes, it would.

Senator CASE. Does that have to be pumped that much?

Mr. THORFINNSON. It has to be pumped over that rise of hills; yes.

Senator CASE. I thought there was someplace called Prophet's Gap where there is a short distance.

Mr. THORFINNSON. There is a shortening of distance, but the rise is still there. You still have to get over those hills. Then once, of

course, you get it into the James and into the Cheyenne, then it will flow downhill.

We have been told that we can expect a cost of $100 an acre for leveling. That is an expense that very few farmers are in a position to pay without assurance that when they need water they will have water. The past history of my State has been that we have had periods of dry years. Those periods of dry years are going to call for a reservoir that is as near full as possible, because otherwise we find ourselves at the end of 2 or 3 years of dry weather with no water at the time we need it most.

So I would like to refer again to the conclusion in my statement.

I thank you, Mr. Chairman.

Senator CASE. Thank you very much, Mr. Thorfinnson.

The next witness will be Mr. Nohr.

STATEMENT OF HAROLD J. NOHR, MANAGER, MOUNTRAIL ELECTRIC COOPERATIVE, STANLEY, N. DAK., PRESIDENT, NORTHWEST POWER COOPERATIVE

Mr. NOHR. My name is Harold J. Nohr. My address is Stanley, N. Dak. I am the manager of the Mountrail Electric Cooperative, Inc., and president of the board of directors of the Northwest Power Cooperative. This power cooperative consists of Burke-Divide Electric Cooperative, Inc., McKenzie Electric Cooperative, Inc., Williams Electric Cooperative, Inc., Verendrye Electric Cooperative, Inc., Tri-County Electric Cooperative, Inc., Baker Electric Cooperative, Inc., and the Mountrail Electric Cooperative, Inc., all in North Dakota.

These 7 electric cooperatives have a total consumer membership of 20,157 members who in the year of 1955 purchased a total of 83,883,345 kilowatt-hours. The bulk of this power was obtained by these consumers either from the Bureau of Reclamation through its generating plants or had such power delivered over Bureau of Reclamation transmission lines, or both.

For the past 2 years the Northwest Power Cooperative group has been giving serious consideration to the future power-supply situation as it relates to our members, and our concern in this matter appears to be amply justified in view of the fact at the present time we are renegotiating new power contracts with the Bureau of Reclamation for our wholesale power supply and the Bureau is unable to enter into firm contracts to take care of our power requirements beyond December 31, 1958.

One of the reasons given for this is the extremely low water supply behind the Fort Peck Dam. In the power business this is a critically short period of time in which to have your future power-supply requirements arranged for.

The Northwest Power Cooperative has for several months past been working closely with the Montana Transmission and Electric Cooperative, of which Charles Mahoney and James Appenzeller, of Circle, Mont., are chairman and secretary, respectively. Our two groups find that our problems are quite mutual, and we are very much in agreement as to our recommendations.

I might digress from the statement and say that I heard Mr. Mahoney's testimony this morning, and I am in full agreement with his testimony. I have attended practically every meeting that Mr. Mahoney has had with the Bureau of Reclamation office at Billings and other points in the past year and a half.

We understand that a considerable amount of water was released during the past year from all of the main-stem dams in the Missouri River in order to take care of downstream navigation, steam generation, water requirements of St. Louis, and municipal fresh-water supply for the city of New Orleans. Perhaps the release of this water at that time was absolutely unavoidable and essential but then, again, perhaps other means of transportation could have been used to replace further navigation to some extent at that time. Other means of taking care of the water requirements at St. Louis and New Orleans might also have been satisfactorily arranged so that at least a portion of the water which was released could have been retained in our area at the upper reaches of the Missouri River, thus assuring a more abundant supply of electric power for this area.

We respectfully urge the Congress to make a thorough study and investigation of the uses of water in the Missouri-Mississippi watershed to determine:

1. Whether or not these waters are being prudently used in accordance with the directives laid out by the Millikin-O'Mahoney amendment.

2. Whether or not the city of New Orleans and its municipal water supply is actually endangered by salt water which is reportedly backing up into the Mississippi River channel and whether the fresh-water supplies of the city could be met adequately from ground waters which we understand are only a matter of a few feet below the earth's surface throughout all of New Orleans.

3. To determine what steps could be taken to meet the water requirements for steam generation and cooling purposes at St. Louis other than excessive releases from upstream Missouri River dams. Perhaps other means of generation requiring less water should be explored and developed at this site.

4. To determine the advisability and desirability of depleting water supplies in these upstream dams of the Missouri River to maintain downstream navigation taking into account all the cost factors involved in such navigation both the direct costs and any indirect costs such as maintenance or developments of channels, and so forth, by the Corps of Engineers, or other governmental agencies.

We believe this study should include dams equipped with locks for the purpose of establishing a slack water navigation channel on portions of the Missouri such as are now in operation on the upper Mississippi. It would seem that such a plan could provide improved navigation service with a considerable saving of water supply. We understand that many downstream farms on river-bottom lands are now being flooded with increasing frequency, aggravated by river jetties installed by the Army Corps for navigation purposes. The losses and costs resulting from any such unnecessary flooding should

be carefully evaluated in relation to compensatory benefits from navigation.

Two years ago, when the Fort Peck Dam was full to capacity, the existing generators installed there were putting out 95,500 kilowatts. Today, with most of the water released from behind the dam, we are told the maximum possible power output is 42,000 kilowatts, although the rated capacity of the generators is 85,000 kilowatts. Two weeks ago, the power produced at Garrison Dam was 140,000 kilowatts from an installed capacity of 240,000 kilowatts. Now we understand that operating all these hydropower generators with such a low head of water is so injurious to those generators that the manufacturers will not guarantee their product when so operated, inasmuch as the generators were designed to operate properly and in proper balance with a much greater head of water. We contend that such operation of these generators should be overcome as quickly as possible by increasing the amount of water behind these dams as rapidly as possible.

We believe that all the water possible should be stored behind the upper dams on the Missouri first, then as this water is released through the turbines at Fort Peck, it can again be used for the generation of additional power at each of the dams downstream, thus attaining the maximum amount of energy from every drop of water available.

Gentlemen, I appreciate the opportunity of appearing before this committee.

Senator CASE. Thank you very much, Mr. Nohr. I think I will have to have you back here to testify before the committee on the 13th of May when we are having hearings on my bill on cloud modification. The only way I know we can increase the water at the head of the streams is to increase the snow pack in the mountains. I think we might do some of that, modifying the clouds.

Thank you very much for your statement.

Mr. LINEWEAVER. I would like to ask a question of Mr. Nohr.

I was interested in his map attached to his statement.

What do these figures mean? For instance, North Dakota has 17.

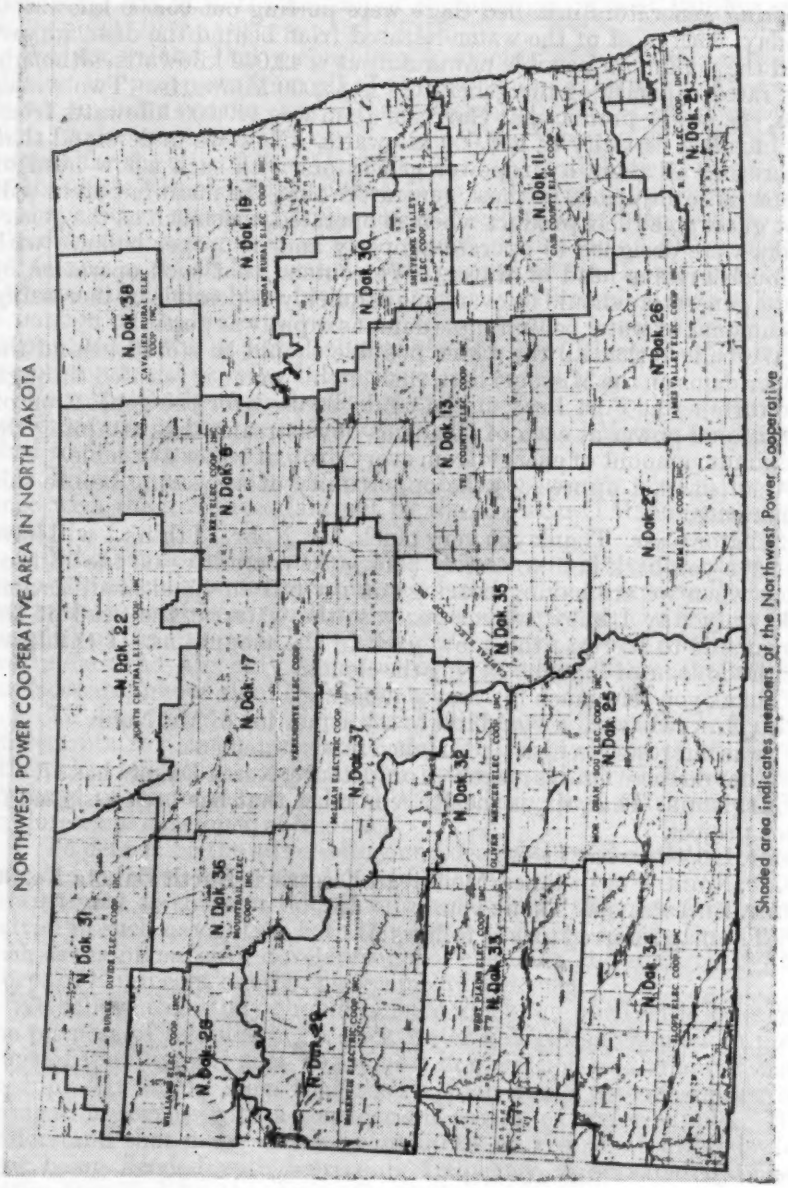
Mr. NOHR. That, sir, is the REA number that has been assigned to each project.

Mr. LINEWEAVER. I see.

Mr. NOHR. For instance, Mountrail Electric is North Dakota No. 36.

Mr. LINEWEAVER. Thank you.

(The map referred to is as follows:)


NORTHWEST POWER COOPERATIVE AREA IN NORTH DAKOTA
N. Dak. 38
N. Dak. 19
N. Dak. 30
N. Dak. 11
N. Dak. 21
N. Dak. 6
N. Dak. 13
N. Dak. 26
N. Dak. 22
N. Dak. 17
N. Dak. 35
N. Dak. 27
N. Dak. 37
N. Dak. 32
N. Dak. 25
N. Dak. 31
N. Dak. 36
N. Dak. 28
N. Dak. 33
N. Dak. 34
Shaded area indicates members of the Northwest Power Cooperative

Senator CASE: Mr. Reinecke will be our next witness.

STATEMENT OF E. H. REINECKE, DIRECTOR OF THE TRI-COUNTY ELECTRIC COOPERATIVE OF WYOMING, AND VICE PRESIDENT OF THE RUSHMORE GENERATION AND TRANSMISSION COOPERATIVE

Mr. REINECKE. Mr. Chairman and gentlemen of the committee, my name is E. H. Reinecke. I live in Beulah, Wyo., and am a director of the Tri-County Electric Cooperative of Wyoming and vice president of the Rushmore Generation and Transmission Cooperative which is composed of five distribution cooperatives serving western South Dakota and one in the extreme northeast portion of Wyoming. I appear here as a representative of the rural electric cooperatives of the State of Wyoming.

I would like to at this time insert into the record a statement thanking Senator O'Mahoney from Wyoming for his appearance before this committee yesterday, to explain the reasons why the O'Mahoney-Millikin amendment was added to the 1944 flood-control bill, and his interpretation of the amendment.

The 15 rural electric cooperatives in the State of Wyoming operate approximately 15,000 miles of distribution lines and serve approximately 25,000 consumers throughout the State. All of the rural electric systems in Wyoming, except one, purchase their wholesale power requirements either directly from the Bureau of Reclamation or, in the case of my own cooperative, through a cooperative generation and transmission system integrated with the Bureau of Reclamation's hydroelectric system. Last year the Wyoming cooperatives which purchased wholesale power from the Bureau of Reclamation paid between 5.9 and 6.8 mills per kilowatt-hour for it.

By contrast, the one cooperative which purchased its entire requirements from private utility companies paid between 9.8 and 14.8 mills per kilowatt-hour for its wholesale supply. Since the cooperatives of Wyoming, as a whole, use some 143 million kilowatt-hours per year at the present time, a saving of only a few mills per kilowatt-hour soon amounts to a sizable quantity of dollars. Our interest in the continued availability of low cost Bureau of Reclamation power in Wyoming is therefore obvious.

I would like to add to that that in my own cooperative we have had some 400 members that we were unable to serve electricity to until we made this agreement with Rushmore G. and T. and were able to get power at a cheaper rate.

It was the factor of the high price that we were paying for power. We never could make the project feasible and were unable to serve those people.

We are now building the lines, since we got the power at a cheaper rate, to these members.

The major portion of the State of Wyoming lies east of the Continental Divide and most of the rivers which rise in the State ultimately feed into tributaries of the Missouri system.

We in Wyoming realize the importance to the Western States, both in terms of agriculture and industrial development, of maximum utilization of the Missouri River system. We have no desire to deny the benefits of the Missouri River development to the downstream States so long as the use of water in the lower reaches of the river is not wasteful. If the need for water in the upper reaches of the river for irrigation purposes continues to expand and if, as is now the case throughout Montana and Wyoming, western South Dakota and North Dakota, farmers continue to build individual stock ponds, it is entirely possible that the estimates of the quantity of water that will flow down the main stem of the Missouri in years to come may be much too optimistic.

Senator CASE. At that point, Mr. Reinecke, did you have in mind the effect on the flow of the Belle Fourche River, below Keyhold?

Mr. REINECKE. Not necessarily that, but of all of the tributaries of the Missouri system. When you fly over that area, you can see thousands and thousands of dams. I have heard that report, though I do not know how true it is, that if you add all of these stock-water dams together, it will store up just as much water as on the Missouri River. I do not know how true it is.

Senator CASE. I think it is true that the stock-water dams on the Cheyenne are having some effect on the amount of water that goes to the Angostura Dam, and also in the area where you live, around Beulah, that probably also has some effect on the amount of water that goes down the Belle Fourche to the dam.

Mr. REINECKE. I have heard fellows that live under the project. I have heard them talking that they have their places all under irrigation, and now the farmers up in the north country are holding the water from the small tributaries.

So I believe that this water is going to become less. Still, I would like to see that water held back on the land, because I think you do have two effects. I think there is a certain effect of evaporation, which will help bring more rainfall back to the crops; and also the ground water. The ground water in our area is getting lower and lower all the time.

I believe we should have more of this water that we can catch that does not go down into the Mississippi. Of course it will be hard on the navigators, but I do not believe the oceans will dry up. The more of that water that is held back in the States will help the ground water, too.

Senator CASE. I think it helps the cloud formation, too. I think one of the problems in the northern great plains is that we are so far from large bodies of water that we do not have the same opportunity for the lower type of clouds to develop as they have on the seacoast.

Mr. REINECKE. We, therefore, join our neighbors in the Dakotas, in Montana, and in Iowa in asking that whatever is wasteful in the operation of the Missouri River Basin System be eliminated, because we in Wyoming feel that water is a precious resource from which every available benefit must be extracted.

Thank you, sir.

Senator CASE. Thank you very much.

We have one other witness, Mr. Lloyd Zimbrick, of Wheaton, Minn.

STATEMENT OF LLOYD ZIMBRICK, MANAGER OF THE TRAVERSE ELECTRIC COOPERATIVE, WHEATON, MINN.

Mr. ZIMBRICK. Mr. Chairman, my name is Lloyd Zimbrick and I am the manager of the Traverse Electric Cooperative of Wheaton, Minn., a rural electric distribution cooperative serving members in Minnesota and South Dakota. I am a lifetime resident of the area; I helped to organize this cooperative and have been the manager since its inception.

Our electric cooperative was organized in 1940 and we were able to construct approximately 200 miles of line prior to the outbreak of World War II. It was not until 1946 that we were able to do additional construction, but since that time we have expanded our facilities to a point where we have 1,700 miles of line, serving 2,538 farm consumers. Please note that I said "farm" consumers. We do not have a three-phase connection on the system; we have no commercial loads; no nonfarm accounts, represented by small towns, and have only a few cottages.

In view of the fact that we have only farm consumers, we are vitally concerned with this transition taking place in the rural areas which has brought about larger farming units and has resulted in a decrease in the number of farm occupants. I believe you will agree that some of our most intelligent, talented and aggressive leaders of this country, past and present, are men and women who were born and raised in a rural community. It is so vital, today, that people having authority do their utmost to promote a rural environment that will encourage our younger generation to remain on the farm. We are of the opinion that this can be accomplished, at least to a degree, if low-cost electric power is available in the rural communities.

We find, in our area, the conveniences and comforts of electric energy are found, primarily, in the home.

According to Agriculture Information Bulletin 161, households used as high as 87 percent of the total electric power consumed on farms, while farming operations used only approximately 13 percent. I am confident that with a cheaper and more abundant supply of electric energy, the farmer would apply the use of electricity to the production of crops—drying, conditioning, irrigation, cleaning, grinding, mixing and insect control as well as the use of electrically powered and controlled farm machinery.

I would like to point out that in 1950, Traverse County had 996 farms; in 1954, according to the agricultural census, we had 913 farms—a decrease of 83 or 8.33 percent.

Since this census report, we find that we have lost an additional 38 farms; this is a 12.1 percent decrease in the farms in this county in the past 6 years.

I would like to point out also that the adjacent county had 1,894 farms in 1950 and at the close of 1954, according to the same census report, had 1,691 farms—a decrease of 203 or 10.71 percent. This trend gentlemen, is alarming and I believe it is quite hopeless to try to enact legislation that will require our people to remain on the farm,

but I do believe that an abundance of cheap electric power will be the greatest incentive to keep our people in the agricultural areas of our Nation.

I would like to point out that our electric cooperative, due to its location, has had an operational experience that is quite different from other electric cooperatives. We have had an opportunity, due to the fact that one-third of the area that we serve is in South Dakota, to obtain and enjoy the benefits of hydropower from the Missouri River for the past 3 years. In this area in South Dakota, last year, we served 841 farms. We purchased for these farms slightly less than 4 million kilowatt hours from the Bureau of Reclamation and wheeled it over the East River Power Cooperatives system; we did so at a saving of $15,535.73 which is 33.18 percent less than we would have paid for this energy under a wholesale power contract we previously had with a private power company in that area.

For the 1,697 members that we serve in Minnesota, which constitute approximately two-thirds of our total membership we purchased, in 1956, 8½ million kilowatt-hours for which we paid the power company $101,800. We were told by the Bureau of Reclamation that we could expect to receive approximately 50 percent of our Minnesota requirements in December 1956, according to a letter dated July 1, 1954, from the Billings Office.

In March of 1956, we were told they anticipated initiating service in the spring of 1957. Now we are informed in a letter from the same office, under date of February 27, 1957, that the initiation of Bureau power in Minnesota is again delayed.

I would like to quote excerpts from the statement which accompanied that letter. A copy of each of these letters and the statements is attached hereto. I quote:

> It is still too early to estimate the water that will be available in 1957. If the year should be favorable, much of the water lost in the last 3 years can be made up, and firm power can be initiated to all or most of the remaining allotees not yet served. If 1957 should see a continuance of poor water conditions, there may be little additional power for use in starting service to new customers * * * for the present, the Bureau of Reclamation is not able to promise firm power service to any new customers except one or two small loads that the Bureau was authorized to serve last year but did not supply for one reason or another.

(Letters referred to follow:)

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION, REGION 6,
Billings, Mont., July 1, 1954.

LLOYD D. ZIMBRICK,
Manager, Traverse Electric Cooperative,
Wheaton, Minn.

DEAR MR. ZIMBRICK: Enclosed is a memorandum prepared by the Bureau of Reclamation and approved by Assistant Secretary Aandahl which allots the additional power to be available for sale through 1958 in the eastern area of the eastern division, Missouri River Basin project. You will note that your organization has been allotted a total of 2,400 kilowatts, including any amounts previously committed to you.

We will present to you for your consideration as soon as practicable a contract for the sale of this amount of firm power under the standard terms and conditions which are established for its sale. Before the contract is presented, representatives of the Bureau will get in touch with you to consider certain details of the provisions and any special problems which may require attention.

We are not able as yet to estimate when we will be able to start work on your contract, or when it will be possible to present a contract draft for your consideration, but we will proceed as rapidly as is feasible. In general, contracts with customers of the Bureau now being served or to receive service in the near future will receive first attention.

This letter will constitute notice of the intent of the United States to sell and deliver to you the amount of firm power stated above, but only (*a*) if a contract therefor is completed and pursuant to the terms of the contract, and (*b*) when the United States determines that it is able to deliver the power.

We realize that you may require information as to when the power can be delivered, and as to certain provisions of the contract, in advance of the time at which a draft of contract can be submitted to you. We wish to provide this information to you to the full extent practicable. We will probably be able to give you a specimen contract later this summer which will in general be applicable to your situation, if you would wish to see one and we have not already initiated discussions with you. We can also give you an estimate of the date at which service can be initiated, if you are not now being served and have not been previously informed. In general, service to most North and South Dakota loads not now served is expected to begin before the winter of 1955–56, and to Minnesota loads in December 1956.

Contracts will be negotiated by this office, but representatives of the Bureau's Bismarck and Huron offices will assist in obtaining needed information. Requests for information relating to service in North Dakota and northern Minnesota may be made to the supervising engineer, Bureau of Reclamation, Bismarck, N. Dak., and for South Dakota and southern Minnesota, to the supervising engineer, Bureau of Reclamation, Huron, S. Dak., or inquiries may be made to this office.

Sincerely yours,

F. M. CLINTON, *Regional Director.*

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
REGIONAL OFFICE, REGION 6,
Billings, Mont., March 23, 1956.

MANAGER, TRAVERSE ELECTRIC COOPERATIVE,
Wheaton, Minn.

DEAR SIR: Enclosed is a statement setting forth the present program of the Bureau of Reclamation for initiating new firm power service in this region in the immediate future to preference-type customers which have been allotted firm power.

We regret that we are unable to include your cooperative in this immediate program. At present, we anticipate initiating service to your cooperative in the spring of 1957 after the Bureau completes the facilities that are necessary to deliver power in Minnesota such as its Granite Falls and Fargo substations, but it should be clearly understood that this is not assured. Service next spring will be contingent largely on water conditions this year and next year, as well as on the completion of facilities. Service could be delayed beyond next spring, or it conceivably could be sooner.

In the meantime we will proceed as promptly as feasible to settle the details of the arrangements for service to the end that when the Bureau has the necessary power and transmission facilities, service can be started promptly. If these arrangements are to be made with a generating and transmission cooperative as has been discussed, we will deal with it. If they are to be made directly with your cooperative, we expect to initiate detailed discussions with you in the next few months.

Very truly yours,

F. M. CLINTON, *Regional Director.*

DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
REGIONAL OFFICE, REGION 6,
Billings, Mont., February 27, 1957.

Mr. LLOYD D. ZIMBRICK,
Manager, Traverse Electric Cooperative,
Wheaton, Minn.

DEAR MR. ZIMBRICK: We are enclosing a statement on the prospects for initiating firm power service in 1957. This statement is being sent to all customers that are not yet receiving their allotment of Missouri River Basin firm power.

The Bureau will proceed as rapidly as feasible to complete contracts, or contract amendments where needed, so that they will be in force in the event firm power service can be initiated this year.

Very truly yours,

F. M. CLINTON, *Regional Director.*

INITIATION OF FIRM POWER SERVICE TO CUSTOMERS IN THE EASTERN AREA OF THE EASTERN DIVISION, MISSOURI RIVER BASIN PROJECT

Up to the present time firm power service has been initiated to preference-type customers in the eastern area of the eastern division, Missouri River Basin project, that were allotted firm power in 1954 about as rapidly as transmission facilities necessary to serve them have been completed. However, there were a few customers which could have been reached in 1956 to which service was delayed for lack of an adequate supply of firm power.

All necessary transmission facilities to be provided by the Bureau of Reclamation for serving all the remaining allottees not yet receiving firm service should be ready this year. The Fargo substation is almost completed. The Granite Falls substation and the Grand Forks substation are expected to be in operation before the end of the summer.

Unfortunately, the power-supply situation currently is not equally promising. The last 3 years have been quite unsatisfactory from a water-supply standpoint. There has been no spectacular general drought in the Missouri River Basin above Fort Randall, but flow in the Missouri River has been much below normal in each of the years 1954, 1955, and 1956. This is an occurrance which has been without historical precedent except for the prolonged drought of the 1930's, and was not considered a reasonable prospect when the original plan for initiating firm power service was prepared. These low river flows would not have been so serious had the Missouri River main-stem reservoirs been filled to begin with, but these last 3 years had been expected to provide water for filling them.

It is still too early to estimate the water that will be available in 1957. If the year should be favorable, much of the water lost in the last 3 years can be made up, and firm power can be initiated to all or most of the remaining allottees not yet served. If 1957 should see a continuance of poor water conditions, there may be little additional power for use in starting service to new customers.

By late March or early April there will be data on snow packs in the mountains and precipitation elsewhere that will give some definite indications as to what is in store for the rest of the year. At that time prospective customers with firm power allotments will be given further advice on the prospects for initiating firm power service to them in 1957. For the present, the Bureau of Reclamation is not able to promise firm power service to any new customers except 1 or 2 small loads that the Bureau was authorized to serve last year but did not supply for one reason or another.

If any questions arise concerning this statement, please address them to the Regional Director, Region 6, Bureau of Reclamation, Post Office Box 2553, Billings, Mont.

System load growths and savings

	South Dakota, kilowatt-hours purchased	Minnesota, kilowatt-hours purchased	Total kilowatt-hours purchased	South Dakota power bill	Minnesota power bill	Total power bill-system
1956						
Actual power costs (bureau power in South Dakota only)	3,883,932	8,488,302	12,372,234	$31,281.98	$101,821.72	$133,103.70
50 percent bureau power, Minnesota				31,281.98	73,848.23	105,130.21
Savings by cooperative					27,973.49	27,973.49
100 percent bureau power, Minnesota				31,281.98	46,685.66	77,967.64
Savings by cooperative					55,136.06	55,136.06
1961						
Bureau power in South Dakota only	6,255,110	13,670,490	19,925,600	50,040.88	162,678.83	212,719.71
50 percent bureau power, Minnesota				50,040.88	118,933.27	168,974.15
Savings by cooperative					43,745.56	43,745.56
100 percent bureau power, Minnesota				50,040.88	75,187.70	125,228.58
Savings by cooperative					87,491.13	87,491.13
1966						
Bureau power in South Dakota only	10,073,916	22,016,460	32,090,376	80,591.32	261,995.87	342,587.19
50 percent bureau power, Minnesota				80,591.32	191,543.21	272,134.53
Savings by cooperative					70,452.66	70,452.66
100 percent bureau power, Minnesota				80,591.32	121,090.53	201,681.85
Savings by cooperative					140,905.34	140,905.34

Mr. ZIMBRICK. If we could obtain 50 percent of our Minnesota requirements, this indeed would be a substantial savings but, by the same token, if we could receive 100 percent of our power requirements from the Bureau for the area we serve in Minnesota, our power bill for the year 1956 would have been $46,685.66. This would be a savings for our Minnesota membership of $55,136.06 or 54.14 percent.

For your further consideration, I have submitted herewith a table of statistics projecting for 5 and 10 years, the anticipated load growth for this cooperative and the savings effected if we could obtain 100 percent of our power needs for the entire cooperative from the Bureau of Reclamation. This load growth is a conservative estimate and if we were to consider electric house heating, the percentage of increase would be much greater.

Now I would like to call to your attention the kilowatt-hour consumption of 15 neighboring cooperatives located in western and southern Minnesota and all within the Bureau of Reclamation marketing areas:

1956 kilowatt-hour loads of Minnesota cooperatives, western and southern Minnesota

Agra Lite Cooperative, Benson	20, 250, 600
Brown Country Electric Association, Sleepy Eye	25, 426, 002
Central Minnesota Co-op Power Association, Clements	13, 366, 188
Federated Rural Electric Association, Jackson	29, 203, 409
Lake Region Co-op, Pelican Rapids	36, 242, 800
Lyon-Lincoln, Tyler	12, 764, 160
McLeod Co-op Power Association, Glencoe	31, 053, 680
Meeker Co-op Light & Power, Litchfield	20, 766, 500
Nobles Co-op Electric, Worthington	24, 542, 128
Renville-Sibley Co-op, Danube	12, 140, 440
Runestone Electric Association, Alexandria	20, 732, 418
South Central Electric Association, St. James	23, 667, 711
Stearns Co-op Electric Association, Melrose	31, 992, 513
ToddWadena Electric Co-op, Wadena	14, 787, 240
Traverse Electric Cooperative, Wheaton	12, 372, 234
Other co-ops partially within marketing area	26, 200, 458

They are all members of the Cooperative Power Association, a new power cooperative, organized for the purpose of pooling allotments of energy anticipated fram the Bureau and the purchasing of additional power; the transmission or wheeling of that power and other matters related thereto. These cooperatives had a combined consumption last year of 355,508,561 kilowatt-hours. The average cost of this power was approximately 11.5 mills per kilowatt-hour which resulted in a wholesale payment to the power companies of Minnesota of well over $4 million, in fact $4,088,348.45, for the cooperatives.

If they would have all received hydroelectric power from the Bureau of Reclamation at 5½ mills, there would have been a savings to the farmers in this marketing area of $2,133,051.37 or 52.17 percent.

It might be well, gentlemen, to consider these savings when weighing the benefits of the production of hydro power, in this area alone, versus navigation.

Several State legislatures have recently enacted memorials to Congress, asking that there be a study of water released for navigation from the Missouri Basin reservoirs. It is the opinion of my board of directors and directors of other electric cooperatives that we may not be obtaining the maximum production of power from the waters of the Missouri River and its tributaries. We feel also that there could possibly be a more coordinated effort between the people interested in irrigation, navigation, water supply, flood control, and power generation so as to supply greater blocks of firm power for the farmers in this marketing area.

Development of the maximum amount of firm power from Missouri River dams could save millions of dollars, annually, for the farm people of western and southern Minnesota. The rural people of this area are close enough to the main-stem dams so that this power can be transmitted to their load centers economically. Making hydroelectric power available to these rural people will be a valuable contribution to bolstering the farm economy of this area and preserving a way of life vital to the region and the Nation.

Mr. Chairman, I would like to say that in listening to the testimony here the last 2 days, I am of the firm opinion that my closing paragraph, which I have just read, brings out the point that better management could be made of the water in the Misouri Basin. I believe

that some central management, some central control, is the answer to our problem.

Senator CASE. I note you use the phrase "a more coordinated effort between the people interested in irrigation, navigation, water supply, flood control and power generation." You are not taking the position that " it should be all for us" or "all for them" but a coordinated effort?

Mr. ZIMBRICK. That is right; that is, the best possible use be made of the water.

Thank you, Mr. Chairman.

Senator CASE. Thank you, Mr. Zimbrick, for a very fine statement.

If there are no other witnesses that want to be heard this evening, the acting chairman will take the liberty of recessing the hearings until tomorrow morning at 10 o'clock. At that time, I am advised, there are several witnesses to be heard.

The committee will now stand in recess until 10 o'clock tomorrow morning.

(Whereupon, at 4:30 p. m., the committees recessed, to reconvene at 10 a. m., Friday, May 3, 1957.)

MISSOURI BASIN WATER PROBLEMS

FRIDAY, MAY 3, 1957

UNITED STATES SENATE,
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS; AND
COMMITTEE ON PUBLIC WORKS,
Washington, D. C.

The joint committee met at 10 a. m., pursuant to recess, in room 224, Senate Office Building, Hon. John A. Carroll (presiding).

Present: Senators Clinton P. Anderson (New Mexico); John A. Carroll (Colorado); Francis Case (South Dakota); and Roman L. Hruska (Nebraska).

Senator CARROLL. The committee will be in order.

I ask unanimous consent to insert into the record, at the request of Mr. J. R. Smith, a statement he has submitted from the Leavenworth, Kans., Chamber of Commerce. Without objection, it will be admitted into the record.

(Statement referred to follows:)

CHAMBER OF COMMERCE,
Leavenworth, Kans., April 30, 1957.

Mr. JAMES SMITH,
Mississippi Valley Association, Missouri River Division,
Omaha, Nebr.

DEAR SIR: It is our belief that the comprehensive basin plan for control of the waters of the Missouri Valley as set forth in the Pick-Sloan plan and the O'Mahoney-Millikin amendment best serves the interest of all the people in the Missouri Valley.

We further believe that the Missouri River Reservoir Coordinating Committee and the Corps of Engineers are putting into practice the terms of the above-mentioned plan and amendment to the best interests of all concerned and are complying completely with their provisions.

Until the system becomes fully operative on completion of dams, powerplants, etc., and the filling of the reservoirs, a true assessment of the adequacy and sense of the provisions of the law cannot be made. Until that time, undue emhasis on any one of the provisions will only result in slighting the others.

The particular interests of Leavenworth and surrounding territory lie with navigation, flood control, and prevention of stream pollution.

The development of a 9-foot channel at the earliest possible date is vital to our interests, especially in the light of the St. Lawrence seaway development. The release of water for minimum navigation requirements commensurate with other obligations should not be stopped to satisfy the demands made by one special interest group, such as the REA, especially since all current needs of that group are being supplied.

Very truly yours,

J. V. OLIVER,
Chairman, Industrial Committee.

Senator CARROLL. We are happy to have with us this morning the distinguished Senator from Kansas, Senator Frank Carlson, who is here to testify on a matter before the committee.

STATEMENT OF HON. FRANK CARLSON, UNITED STATES SENATOR FROM THE STATE OF KANSAS

Senator CARLSON. Mr. Chairman, I appreciate very much the privilege of appearing before this committee in regard to the allocation for use of the water in the Missouri Valley Basin.

Our State has recognized that water is one of the most valuable assets we have. As a matter of fact, I think the future growth and development of our State, both industrially and agriculturally, will be determined by the amount of water we can conserve and use for beneficial purposes.

I do not appear here this morning as an expert, but I did have the privilege of serving in the House of Representatives and as a member of the Flood Control Committee of that body in 1936, when our committee, under the able leadership of Mr. Whittington, of Mississippi, wrote what was then known as the Comprehensive Flood Control Act of 1936.

At that time, I took a special interest in the problems of the Missouri Valley Basin. We made great progress in the control of water runoff under that program.

It was my privilege to serve in the House of Representatives when the O'Mahoney-Millikin amendment to the Flood Control Act was approved in 1944.

I took an active interest in securing approval of the Pick-Sloan plan, which provided for an overall program for the basin. The adoption of that plan brought about a cooperative program between the agencies of our Government for the use of water which was to be stored in the great reservoirs, which were then to be constructed at some time in the future.

It was necessary that we in the Missouri Basin arrive at just such an agreement in order that we might obtain fair distribution downstream of this water for irrigation, downstream water supplies, city uses, and power production for the upper river States.

With both groups working together, the upper Missouri River is becoming the greatest series of manmade reservoirs in the world.

It is my contention, Mr. Chairman, that no permanent allocation of priority should be established for the use of water in this basin until the complete Pick-Sloan plan for the control of water in this area is completed. Following the completion of the program, and given some time in which we can determine the needs of the various sections of the basin for beneficial uses of water, then I feel we can and should make allocations.

Comprehensive and cooperative river development can encourage industrial expansion which is badly needed in the entire basin. It can encourage it by offering industrial water supplies, navigation, recreational facilities, and hydroelectric power.

The population of our area is rapidly shifting from an agricultural population to an industrial population. While it is true our section will always remain a great agricultural area, and we must keep in mind the need of water for irrigation purposes, we cannot overlook the fact that the present trend is moving toward the cities and toward industrialization. This means we must keep in mind water for in-

dustrial uses, for sanitation of our cities, for recreational purposes, and for electric power.

I think the greatest loss the Missouri River Basin is suffering at the present time is the loss of thousands of our people through outmigration into other areas. We have some of the finest schools in the Nation in this section; we train outstanding scientific and technical personnel and then lose them to other sections of the Nation.

I get back to my earlier statement that the future growth and development of our great area will be determined largely, both industrially and agriculturally, by the amount of water we can conserve and use for beneficial purposes.

I sincerely hope, Mr. Chairman, that no action will be taken at the present time that might in any way impede the growth and development of the area as a whole.

I thank you kindly, sir.

Senator CARROLL. I thank you, Senator Carlson, for appearing before this committee.

I would like to ask you a question or two with reference to the O'Mahoney-Millikin amendment. Based upon your previous legislative service in the House of Representatives, and in your present capacity as one of the Senators from the great States of Kansas, is there any doubt in your mind whatsoever that the beneficial use of water for domestic, for industrial, for irrigation purposes, and other purposes as set forth in the O'Mahoney-Millikin amendment, were to be given precedence and priority over the use of water for navigation?

Senator CARLSON. It was my thought, Mr. Chairman, when this amendment was approved, and as I stated I was a member of the House of Representatives at the time, and having served on the Flood Control Committee during the able leadership of Mr. Whittington, at the time Senator Overton was chairman of the same committee in the Senate, that these uses were to be determined as to needs, and that no priority should be given until we were in a position to give priorities. Certainly irrigation would be one that would receive, in my opinion, a very high priority in my section.

Senator CARROLL. I am reading now from the O'Mahoney-Millikin amendment: "The use for navigation" and I will paraphrase, "shall be only such use as does not conflict with any beneficial consumptive use, present or future, of such waters," referring to the waters of these Missouri Basin States "for domestic, municipal, stock water, irrigation, mining, or industrial purposes."

We have had some testimony here by Congressman Wayne Aspinall, Senator O'Mahoney, and others, too, that there was no doubt in their mind at the time this amendment was drafted and accepted by the Congress that the use of water, the beneficial use of water, was to take precedence over navigation purposes.

Senator CARLSON. I would agree that navigation is one of the phases that we give consideration to. I do not say it is a prior consideration, as far as I was concerned. But I say it is one of the phases that could get consideration. I would say very definitely that we felt the need, and I think we realized the need, for protection of water rights for future irrigation, and stressed that little or no mention was made of prior uses for any of these other projects, for instance. I have

a feeling that these should go together. I would not come here today and say that navigation should have preferential treatment, and neither would I say that hydroelectric power should have preferential treatment.

Senator CARROLL. But if the water is coming through hydroelectric power, it would be difficult, would it not, to have proper irrigation without the development of hydroelectric power, because they use power for irrigation purposes?

Senator CARLSON. I assume that power will be one of the important developments in this entire program. That was one of the features that we discussed at the time. When we constructed the comprehensive program I, for one individual, felt that we should take every advantage and use to the fullest extent all the phases that we could develop in a comprehensive reservoir program. But I did not specify priorities. I mean, I did not get that in my own mind.

Senator CARROLL. I think that will be all. Thank you very much, Senator Carlson.

Senator CARLSON. Mr. Chairman, I certainly appreciate your courtesy this morning.

Senator CARROLL. Thank you.

The next witness is Mr. Lloyd Caulkins, of the Northwest Iowa Power Cooperative, Le Mars, Iowa.

TESTIMONY OF LLOYD E. CAULKINS, MANAGER OF THE NORTHWEST IOWA POWER COOPERATIVE, LE MARS, IOWA

Mr. CAULKINS. Mr. Chairman, my name is Lloyd E. Caulkins. I am manager of the Northwest Iowa Power Cooperative, a federation of 10 distribution cooperatives serving about 75,000 people in northwest Iowa and with headquarters at Le Mars, Iowa.

I have a prepared statement and I have some observations that I have made during the course of these hearings. I would like to observe that there is some question in my mind as to the value of one group testifying before your committee and resorting to applying descriptions to the other group that may not see eye to eye with them, such as immature, selfish, and minority groups.

Secondly, I wish to point out that testimony by the group asking for these hearings was launched by an Iowa Congressman asking for slack-water navigation on the Missouri. This was repeated by other witnesses. I also repeat that we want to see slack-water navigation developed. I believe that it might be well to authorize a study into the desirability of slack-water navigation.

We are not opposed to navigation. Nearly every witness who expressed himself as considering the upstream interests, either immature, selfish, or so forth, also expressed complete satisfaction with operating the basin program by the interagency committee. I believe it was definitely established here yesterday that the interagency committee has no legal status to operate any part of the Missouri Basin program, but it is only an advisory committee which may have authority to present bills for consideration by the appropriate congressional committees.

Senator CASE. Mr. Chairman?

Senator CARROLL. Senator Case.

Senator CASE. That, of course, should not be interpreted to mean that they can introduce bills. The only people who can introduce bills for congressional committees would be Members of the Congress.

I mention that because there has been a suggestion at times, that the Missouri Basin Interagency Committee or some other committee be given some sort of a special legal status. I do not know how any committee could ever be created that could present bills, as such, to the Congress, in the sense of introducig them.

Mr. CAULKINS. Perhaps my statement should have been that they can prepare material.

Senator CASE. They can prepare a recommendation or something of that sort, but it would not be introduced unless some Members of Congress would introduced it.

Mr. CAULKINS. At the March 20 Missouri Basin Interagency Committee meeting, at St. Joseph, Mo., a comprehensive report on the development of the Ohio River was presented. It was specifically pointed out that the Ohio was never developed from a navigation standpoint until the enire river was a system of dams and locks.

In other words, slack-water navigation. I have heard it mentioned by a member of the Interagency Committee on various occasions that this study should be made on the Missouri River, but I believe up to now his comments have fallen on deaf ears because no effort has been made to authorize such a study.

I now can see how the navigation interests on the Missouri River can oppose this, since they pay nothing for the money spent to maintain the free highway for their preferential use. I visited with a man in Minneapolis, Minn., who operates barges on the Mississippi River and he assures me that slack water is the only kind of navigation that is really practical.

Slack-water navigation would provide a nearly uniform amount of water at all times so that downstream requirements for powerplants, sanitation, water supply, and other uses would have their requirements met. Such a plan would give a lot of flood protection, also.

It would make possible a uniform supply of firm power, and could be better able to pay off the huge portion of the reimbursable cost that power is assigned to pay off.

I repeat that we are all in favor of navigation, but we feel that the slack-water navigation offers the most possibility.

Senator ANDERSON. There has been a reference or two to slack-water navigation. Would you describe how the river would be operated under slack-water navigation as compared with how it is operated now?

Mr. CAULKINS. There would be, Senator, nearly uniform releases of water through the reservoir system on a continuing basis, rather than large releases to maintain free-flowing navigation as is the present basis for operating the Missouri River.

In part of my testimony I have a table that shows how the sale of power comes into the matter of the navigation releases. In 1956 the sale of dump power occurred in all but 3 months of the year because of navigation releases.

Part of that time those releases were very substantial. I am sure that the Corps of Engineers can furnish information showing releases in excess of 30,000 cubic feet per second at times through the Gavins Point Dam.

The slack-water system would eliminate those large seasonal releases and make releases on a uniform basis, and maintain ample water for the downstream purposes and produce more firm power.

Senator ANDERSON. Which is sold at a very much greater rate.

Mr. CAULKINS. It is sold at a greater rate. Of course, I believe we can recognize that according to the analysis of reimbursable cost that I have in my testimony, the power is scheduled now to repay 89 percent of the reimbursable cost, yet having an allocation of 33 percent of the Missouri Basin project cost.

Senator ANDERSON. We will let you finish your testimony and then we will come back to this.

Mr. CAULKINS. The preference navigation interests are asking the preference power users to settle for a minimum of wintertime firm power under a free-flowing navigation plan. I raise the question: Would the navigation interests be willing to see water releases shut off to a dribble at their peak navigation season?

I am sure that the testimony that has been presented by others at these hearings would indicate that they are not in favor of such a scheme of operations. Comments have been made about the reservoir control center, and the fact that all of the States are adequately represented on the committee operating the center.

Perhaps the States are adequately represented. I feel that there is another phase of representation that should be considered and established, and that is this: that we believe that the preference customers who have utility responsibility to supply their customers, municipalities, and rural electric cooperatives should have representation on the control center in the same capacity that the Bureau of Reclamation does, which has no utility responsibility.

We would like to see this committee take whatever action is appropriate to establish that type of representation. I have one further comment before I go on to my prepared statement.

Our system receives power from the Bureau of Reclamation, Sioux City substation, which is just a few miles south of a small town by the name of Hinton. Presently the Bureau of Reclamation has entered into a contract to enlarge the Sioux City substation to provide facilities for a nonpreference customer.

I have asked the Huron office of the Bureau of Reclamation for information on this particular installation. The cost of contractor-furnished materials and labor amount to over $194,000, but the actual cost of Government-furnished equipment and materials is not available at this time.

I believe that the contract with Iowa Public Service Co. is a short-term contract for no more than 2, 3, or 4 years. I am reasonably certain the contract does not provide for any responsibility on the part of the company to assist the Bureau of Reclamation in any substantial fashion.

On some occasions that has been done. I want to be fair and recognize that it has been done. But the Federal Government is spending a large sum of money for selling dump power to a nonpreference customer, which is brought about by the method of release of water at this time.

I will first present the background on our project. Northwest Iowa Power Cooperative is a transmission cooperative now operating

667 miles of 69,000-volt transmission line serving 41 substations which supply Missouri River power to our 10 members. Northwest was organized for the purpose of bringing low-cost hydroelectric firm power from the Missouri River to its member cooperatives operating in 11 counties of northwest Iowa.

The project was organized in 1949 when plans of the Bureau of Reclamation had been approved to the extent that low-cost Missouri River firm power was to be available in northwest Iowa.

After organization in January 1949, negotiations with the Bureau were started with the objective of agreeing on a plan to get this power to Iowa. At the same time, negotiations were being carried on with REA to find a feasible method of moving this firm power from the Bureau facilities to the load centers of the member cooperatives.

Much time was used in exploring a variety of schemes to accomplish this, before the present plan was evolved and approved. Part of the time was spent in negotiations with the profit utilities supplying most of the requirements of our members in an effort to assure receiving an adequate supply of Missouri River firm power, without large investments on the part of the cooperatives.

Since the utilities would not agree to build new lines to reach additional load centers, or rebuild inadequate existing lines, the cooperatives finally obtained approval to construct this system which was determined to be the most feasible method of assuring adequate quantities of Missouri River firm power to meet the steadily increasing loads of the cooperatives concerned.

The original loan was approved in July 1952, and the office was opened on January 19, 1953. Construction on the first 200 miles of line was started in August 1953 so that most of the power requirements of the 10 members could be supplied from the Bureau in April 1955.

In 1952, sales of power contracts were executed between the Bureau and members of Northwest Iowa Power Cooperative for firm power. Also executed in 1952 was a wheeling contract between Northwest and the Bureau. One provision of the contract between the Bureau and members of Northwest stipulates that the member contracts could be canceled by either party unless Northwest started construction of its transmission facilities by July 1, 1953.

Northwest demonstrated its intent to conform to the contract provisions by awarding a construction contract on June 29, 1953, actual construction starting in August 1953.

Since it was incumbent on Northwest to start construction by July 1953, our next concern was to establish a construction schedule, to fit the date firm power would be available.

Accordingly, on April 9, 1953, a letter was written to the USBR Grand Island office, inquiring about construction schedules of the Bureau and the date firm power would be available. The letter stated as follows:

> Under present schedules and programs, power for Northwest Iowa Power Cooperative is planned to be available in April 1955. However, this delivery date depends on a number of factors, and we are not able to promise definite assurance at this time.

That is only part of the letter.

The letter indicated that sufficient provision had been made—driving pile to support the concrete footings, installation of footings, a delivery of steel towers, stringing overhead conductor, purchase of a substation site and substation equipment—to permit service in April of 1955.

Based on this information, our board of directors adopted a construction schedule in August 1953, that would complete most of our facilities by about April 1955. This was some 650 miles of transmission lines, 41 member cooperative substations, and numerous major and minor switch stations.

Senator ANDERSON. You say on April 8, 1953, a letter was written to the Grand Island office. Was that written by you?

Mr. CAULKINS. Yes, sir.

Senator ANDERSON. Then it says the letter stated as follows.

Mr. CAULKINS. That is the reply. I am sorry, sir, for that error.

Senator ANDERSON. In other words, what you are quoting is what you got back; is it not?

Mr. CAULKINS. That is right, sir.

Senator ANDERSON. It says:

We are not able to promise definite assurance at this time.

You would not be the one to promise anything like that.

Mr. CAULKINS. No.

Senator ANDERSON. It should read:

The letter in reply stated as follows.

Mr. CAULKINS. Yes, sir. This schedule was vigorously pursued until early 1955 when it was learned that no firm power would be available in April 1955, and probably not until April 1956, the date power was finally available.

Throughout the period from April 1953 to November 1955, the date our members were to receive firm power from the Bureau was discussed orally with Bureau representatives, and several letters were written to try and get a firm starting date. A firm date was needed since most of the power contracts our members had with existing suppliers contained a 6-month's cancellation provision. This provision required giving notice 6 months prior to expiration of the contract, or expiration of that year of service, since after 5 years contracts were renewed annually unless canceled by either party.

In any discussion or statement by letter, the major factor faced by the Bureau in setting a date for start of service was availability of water for firm power. This is under control of the Corps of Engineers and necessitated obtaining approval from the corps prior to adding new firm-power customers.

Since 1954 runoff above Sioux City was substantially below normal, navigation releases depleted the supply to such an extent that the firm power for our member loads was not available for the spring of 1955. Although the Bureau had hopes of supplying some of our load by late 1955, the runoff was again deficient and coupled with navigation releases, there was no firm power available during the winter of 1955 and 1956.

A letter from the Bureau's Denver office dated November 22, 1955, outlined the operating plan for the main-stem power plants for 1955 and 1956, and concluded by saying:

> We will advise you if there is any change in the operating plan by the corps, but as it now appears, it will be late March before power can be made available to NIPCO.

Senator ANDERSON. You are saying that they notified you that no firm power would be available. Were they selling dump power?

Mr. CAULKINS. There was no dump power being sold in Iowa that I know of at that time because the Bureau facilities were not completed.

Senator ANDERSON. Were they selling it anywhere?

Mr. CAULKINS. They were selling it in South Dakota, I am sure.

Senator ANDERSON. Very well.

> Releases depleted the supply to such an extent that the firm power for our member loads was not available for the spring of 1955.

Then you say,

> There was no firm power available during the winter of 1955 and 1956.

Was there any other kind of power available?

Mr. CAULKINS. There was no other kind of power available to us, Senator, because the policy of the Department of the Interior is that secondary and dump power will not be sold to customers who do not have generating facilities.

Ours is strictly a transmission project, with no generation involved in it. So we were not able to purchase any other kind of power.

Senator ANDERSON. I am trying to find out if it is your contention that they are running this in such a fashion that they had only dump power available. I was born in South Dakota, where at one time there was the largest apple orchard in the world. You would have a hard time finding it now, however.

For picking, we always got a supply of apples. My father had a practice that we should eat the speckled apples first, because they would spoil, so we ate speckled apples all winter.

Is it my understanding that all you get is speckled apples?

Mr. CAULKINS. I emphasize the firm power, Senator, because our contracts were for firm power and the intent is to point out that firm power was not available to any of our members and it was in accordance with Department policy that firm power would not be available.

I cannot answer how much may have been sold in South Dakota, but I do know some was sold in the fall of 1955 to the Iowa Public Service Co. for a short period from September to November.

Senator CASE. Mr. Chairman.

Senator ANDERSON. Senator Case?

Senator CASE. The situation that Iowa finds itself in is somewhat different from the upper States, when you come to thinking about the O'Mahoney-Millikin amendment. If the O'Mahoney-Millikin amendment establishes a priority for the development of power as opposed to navigation, that priority or preference would only exist for those States which lie wholly or partly west of the 98th meridian. Iowa lies wholly east of the 98th meridian.

Senator CARROLL. I believe that is a fair observation. I might mention this to the witness. It occurred to me, when you talked about the Northeast Iowa Power Cooperative, that you are east of Sioux City, and therefore, you are east of the 98th meridian.

Mr. CAULKINS. Yes, sir; that is correct.

Senator CARROLL. When you were negotiating the loans of REA did you take into consideration the fact that you were east of the 98th meridian?

Mr. CAULKINS. Senator, the Bureau of Reclamation had through the Department of the Interior, established a marketing area for which the Bureau would market the Missouri River power.

Generally, that included the Missouri Basin and only portions of northwest Iowa were included in that area. In fact, the Bureau policy specifically would not permit it going further east into Iowa than the Missouri Basin water drainage area.

Senator CARROLL. What is the marketing area of your cooperative?

Mr. CAULKINS. We serve 11 counties in northwest Iowa, starting with Sioux and O'Brien, and the two-tier countywide, down to an area east of Council Bluffs, including Pottawattamie County.

Senator CARROLL. During this period of time, were you negotiating with the Bureau of Reclamation?

Mr. CAULKINS. Yes, sir.

Senator CARROLL. When you were negotiating, did you meet with the Corps of Engineers?

Mr. CAULKINS. No.

Senator CARROLL. At any time when you met with the Bureau of Reclamation, did anyone ever contest the fact that you were east of the 98th meridian? Was that question ever raised with you?

Mr. CAULKINS. Senator, I was employed as manager of the project after the contracts were completed, but I have had considerable experience—I did not express any information about my background, but I had been employed by the Bureau of Reclamation for 5 years, from 1945 to 1950, and had considerable to do with power marketing in the area.

I have some familiarity with the Bureau policy. I know at that time that it was established that the marketing area would include the Missouri River Basin.

Senator CARROLL. What is the source of your power? Is it Sioux City?

Mr. CAULKINS. Now it is the Missouri River because Fort Randall and Garrison are connected by the 230,000-volt transmission line.

Senator CARROLL. What was it at the time that you negotiated?

Mr. CAULKINS. At the time it was primarily Iowa Public Service Co., three municipalities and some from the Iowa Power & Light Co.

Senator CARROLL. When you were negotiating these contracts, what did you expect to be your source of power?

Mr. CAULKINS. We expected the Missouri River plants to be the source.

Senator CARROLL. Where are they located?

Mr. CAULKINS. South Dakota, North Dakota, and Montana.

Senator CARROLL. How far from your area in miles? What is the marketing area from the source from which you would expect to get it?

Mr. CAULKINS. Gavins Point would probably be 70 miles.

Senator CARROLL. Seventy miles?

Mr. CAULKINS. And Fort Randall about 120 miles.

Senator CARROLL. I think, Senator Case, that we might think of it in this light, that at the very time when the marketing area was established by the Bureau of Reclamation, it seems to me that in the establishment of the marketing area they were seeking to get revenue to make this project feasible, and, therefore, even though the power lines extended beyond, let us say, east of the 98th meridian, I think you could sustain the theory that they had a right to sell the area on the west side of the 98th meridian and to those on the east side to make financially sound their power program.

Senator CASE. I think perhaps we are getting off on that. I think you would find that there are a great many areas west of the 98th meridian that are talking about a power shortage in the same way that Mr. Caulkins is talking about it.

I think more power could be sold west if it were available for sale. I merely brought that point up because I think the difference should be established between the two points of view.

West of the 98th meridian, the people who are short of power may properly raise the question that they have protection under the O'Mahoney-Millikin amendment, depending upon its interpretation, as against the use of water for navigation.

Mr. Caulkins' point, however, is that the production of power should have a priority over the use of water for navigation just in itself. He has not based his argument upon the O'Mahoney-Millikin amendment. I think properly so, in his case, he is just arguing the virtue of his production of power rather than using the water for free-flowing navigation.

Congressman Coad, the other day, who is certainly east of Mr. Caulkins' territory—and I did not make the point at the time because I did not know we were going to get into so much discussion on the O'Mahoney-Millikin amendment—raised the question of the O'Mahoney-Millikin amendment.

I think that was probably not a proper foundation for his argument because I do not see how middle Iowa or eastern Iowa could claim any protection under the O'Mahoney-Millikin amendment for power use.

Senator ANDERSON. I do not want to extend it, but I certainly want to put in a dissent into the record because I do not believe that the O'Mahoney-Millikin amendment confines power sales to an area west of the 98th meridian.

I think if it is interpreted that it does, we will have difficulties in contract negotiations. The right to power is certainly not limited by the 98th meridian.

The use for navigation—

says the amendment—

in connection with the operation and maintenance of such works herein authorized for construction of waters arising in States lying wholly or partly west of the 98th meridian—

this is an attempt to discover what waters we are dealing with.

These are waters arising west of the 98th meridian—

shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the 98th meridian, of such waters, for domestic, municipal stockwater, irrigation, mining, or industrial purposes.

This tries to establish the use to which the water may be put, but I do not believe it confines the west of the 98th meridian. I believe that a State like Iowa or a State like Kansas, might at some date insist that it has some rights even though it lies west of the 98th meridian.

Senator CASE. Mr. Chairman, I am not suggesting that power may not be sold east of the 98th meridian, but I am saying that a reasonable interpretation of the O'Mahoney-Millikin amendment would prevent the use in States lying wholly or partly east of the 98th meridian of claiming a right for the water for something other than navigation.

I do not think that the O'Mahoney-Millikin amendment gives protection for use east of the 98th meridian. I call your attention to the fact that in the O'Mahoney-Millikin amendment there are two references to States lying wholly or partly west of the 98th meridian. The second part relates to the use.

It says the use for navigation of waters arising in States wholly or partly west of the 98th meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the 98th meridian. It is the second use of the phrase "in States lying wholly or partly west of the 98th meridian," and that relates to the use in those States.

Senator CARROLL. I would like to suggest, if I may, that I think Senator Anderson's reasoning and interpretation is sound for this reason: While it may not have been contemplated at the time, it reasonably flows from it for this reason:

If the beneficial consumptive use of this water west of the 98th meridian is to be applied for a domestic or an irrigational use, and part of that use is the development of the project in order for them to make applicable, or—let us put it this way—feasible, the establishment of a marketing area extending east of the 98th meridian.

In this instant case, this is a case where contracts have been formed, where there are obligations running into some $9 million of loans, as I understand it, and they have changed their financial position based upon the use of water which was intended to be used not only west of the meridian, but to make it usable and reasonable, these people have a financial interest.

Therefore, their right follows their contractual right, I believe.

Senator CASE. I suggest that the Senator is confusing the feasibility of the project as a whole when it was authorized with contracts for the sale of power which took place many years afterward and which has nothing whatsoever to do with determining the feasibility of the project.

Senator CARROLL. But the revenue would flow into it. They expected a repayment, I assume, on this, did they not? Is there some of this to be repaid, and the power revenues to be used?

Senator ANDERSON. I was going to suggest that Mr. Wise might make a comment on this. During the hearing Wednesday, Mr. Hanlon requested that counsel of his group be allowed 2 or 3 minutes to discuss their interpretation of the O'Mahoney-Millikin amendment.

That was postposed because other witnesses had plane connections. I thought when this witness finished his testimony, or any time that we could, it would be well to let Mr. Wise make such comments as he can on this. I am as hopeful as you are that we can get through with this testimony. But it is pertinent on this point.

Mr. Wise, you are not planning to leave, are you?

Mr. WISE. No, sir.

Senator ANDERSON. Do you not think that would be well?

Senator CARROLL. It is a very interesting point and I do not want to leave the record in such state that in any way I am agreeing to this interpretation that it could only be limited to the west side of the 98th meridian, the use of electrical energy.

Senator CASE. I am not suggesting that you cannot sell power east of the 98th meridian. I am just suggesting that the O'Mahoney-Millikin amendment does not afford protection for areas east of the 98th meridian when the choice comes to using the water for navigation or for power production.

Senator CARROLL. I am certain that if there is a contract and if there is a use for power, I say that they have a right to speak their piece with reference to the use of that water, if it deprives them of electric energy.

They have a right to be heard on it. I will not pursue that further at this point.

Senator CASE. Mr. Chairman, I do not want to be put in the position of saying that they do not have that right. But this is being properly raised by Mr. Caulkins as to a question of using water for navigation as opposed to power development. He is not basing his argument on the O'Mahoney-Millikin amendment and I think properly he is not basing it on that.

Senator CARROLL. Do you wish to proceed?

Mr. CAULKINS. Very well. I would like to proceed with my testimony now.

Based on this letter, we then planned to start Bureau service by April 1956.

On December 27, 1955, the regional director at Billings, Mont. sent a letter inviting us to be present at a meeting scheduled for January 5, 1956, at Fargo, N. Dak. Here it was orally announced by region VI that the Bureau would not serve any new firm-power loads in 1956.

It is perhaps needless to comment that this announcement caused some immediate action on our part. By this time, we had about $7 million invested in our system and had operated entirely on loan funds for almost 3 years. The prospect of having a complete system built and no revenue in sight for another year was a very discouraging picture indeed.

We had an appointment with REA on January 9, 1956, and asked REA to arrange a meeting with Mr. Aandahl. Accordingly, we met with Mr. Aandahl and Bureau officials on January 10, where we were told the same story as announced at Fargo.

The next day we again met with Bureau officials to see if any kind of arrangements could be worked out to receive power. At that meeting, we were advised that if we could arrange for partial firm power during the winter, perhaps some scheme could be developed that would permit service.

We reminded Mr. Aandahl and Bureau officials that the Criteria of September 1953 specified that the Bureau would purchase thermal-generated power to bring the Missouri River power output up to an average water year. The Interior Department refused to consider

such a plan. We then asked for assistance from REA, some of our congressional delegation, and NRECA and finally, on March 8, were officially advised that power would be available on April 1.

With all of this confusion existing, our members could not cancel many of their existing contracts and, as a result, it was October 18 before all of our 41 substations were served by the Bureau. You can readily understand that this resulted in a substantial loss of revenue to us although none of the delay was caused by our fault.

In fact, we were delayed nearly 2 weeks after April 1, because the Bureau was making some changes in its Sioux City substation to permit sale of dump energy to the Iowa Public Service Co. The delay was caused by permitting Iowa Public Service Co. to use facilities installed to serve our members; and the Bureau would have lost some revenue if Iowa Public was refused service until the facilities were completed.

Such practices lead us to conclude that preference customers are actually not preferred by some of those responsible for marketing the power.

Had service been available in April 1955, as we had been advised, it would have meant a savings to our members of over $189,000 in 1955 alone. It would have meant revenue of at least $280,000 to Northwest for the same period. Similar losses occurred in 1956 since only about half of the power purchased, after it became available in April, could be purchased from the Bureau.

As mentioned previously, we were delayed in receiving full service from the Bureau because contracts with existing suppliers could not be canceled in time to permit getting all the substations supplied with Bureau service until October. Our delayed starting date was due to an adverse water year in 1955, but nearly normal navigation releases which depleted the water to such an extent that our firm power commitments could not be met until April 1956.

The only view we can take with respect to this extra cost to nearly 75,000 people in northwest Iowa, is that about $470,000 was donated in 1955 to the shipping interests using the Missouri.

We see this experience as conclusive evidence that a single management agency, responsible for operation of the entire river, should be established now. How else can there be fullfillment of contracts executed by one Federal agency when it must constantly depend upon another Federal agency for permission to make the contracts effective?

Senator ANDERSON. I do not quite understand this last sentence:

> Our delayed starting date was due to an adverse water year in 1955, but nearly normal navigation releases which depleted the water to such an extent that our firm-power commitments could not be met until April 1956.

That is left hanging in the air. What is the rest of it? Do you mean that the delayed starting date was due to an adverse water year, but there were also nearly normal navigation releases in 1956 that made it impossible for you to get started then?

Did they release nearly normal navigation amounts?

Mr. CAULKINS. In 1955, as I understand it, there were nearly normal navigation releases. The season did not end until November 1955, the navigation season. The point I am trying to make is that there was an adverse water year, but not adverse releases as far as navigation is concerned.

Senator ANDERSON. Even though there was an adverse water year, they went right ahead with nearly normal navigation releases?

Mr. CAULKINS. That is the point I wish to make, sir.

Senator ANEDRSON. Have you any record that bears that out?

Mr. CAULKINS. Only that I——

Senator ANDERSON. I mean, we have to develop that by testimony from other sources?

Mr. CAULKINS. Yes, sir. I know that the navigation releases were started in March of 1955 and ended in November of 1955.

Senator ANDERSON. Which agency is responsible for these nearly normal navigation releases in a drought area?

Mr. CAULKINS. The Corps of Engineers.

Senator ANDERSON. So the Corps of Engineers testimony would be whether they did or not?

Mr. CAULKINS. Yes.

Senator ANDERSON. Whoever is testifying for the corps, will you please comment on that point?

When you come to testify would you please comment on the point that the witness has just made, that there were nearly normal navigation releases even though it was a drought year.

General PERSON. Yes, sir.

Senator ANDERSON. That was in 1955.

Mr. CAULKINS. Your attention is invited to appendix A which shows the sale of power in Iowa to preference and nonpreference customers in 1956. You will note that the preference customers received about 65 percent of the amount sold to Iowa Public Service Co., yet the revenue was about 15 percent greater than from IPS. It is readily apparent that releases for free-flowing navigation, creating large quantities of seasonal power, are costly to the Federal Government as well as the preference customers.

This free-flowing navigation is costly to the Government because large losses in revenue result as this energy must be sold at dump rates, when substantially more firm power would result if slack water navigation was used.

Under such a scheme reasonably stable releases could be made on a year-round basis and provide a large increase in firm power and a resulting increase in revenue. It is costly to the preference customers since they must go to high cost fuel generation at an earlier date than would be necessary, if there was additional firm power from the river powerplants with slack-water navigation.

If navigation releases of 30,000 cubic feet per second are made for 8 million to maintain a 9-foot channel, about 14 million acre-feet of water will be used. According to Corps of Engineer figures, the average annual yield to the Missouri above Sioux City is about 25 million acre-feet.

More than half of this is required for free-flowing navigation alone. When consumptive uses upstream are met in the future, there will not be sufficient water to provide for them and free-flowing navigation. The time is here when this problem should be considered and remedial action taken.

In a report to the Missouri Basin Interagency Committee meeting at Billings, Mont., on June 19, 1956, Mr. James Bradley, engineering

assistant, Office of the Assistant Secretary of Interior, presented an economic analysis of the Missouri Basin project.

This analysis stated that the present allocations for all purposes that are reimbursable amount to $3,459,533,000. Of this amount, 33 percent is allocated to commercial power. Yet, the repayment schedule calls for power to supply $3,066,405,000 or 89 percent of the total.

It appears good business for power to be included as a feature to help pay off this investment. Likewise, it would appear to be good business for the maximum amount of firm power to be produced, thereby assuring preference customers the benefits they are entitled to under provisions of the Flood Control Act, and to produce the maximum revenue to the Federal Government.

We believe a logical immediate solution to this problem is for the Federal Government to construct thermal generating facilities to supplement hydrogeneration at the Missouri River powerplants.

There are large quantities of lignite coal in North and South Dakota which could be economically used for this purpose. Existing transmission facilities are available to adequately handle considerably more power than is presently being handled. This is a program that could be accomplished in approximately 3 years, as long-range program of slack-water navigation facilities should be undertaken at the earliest possible time.

It is recognized that such a program would require several years for completion.

Senator CARROLL. Senator Case, it is this point on the preceding paragraph on page 5 I had reference to, if the figures are correct, on the present allocation for power. As I understand it, the repayment schedule calls for power to supply this tremendous sum of money. If that be true, if contracts were let east of the 98th meridian, this is why I wanted to make the point, that I thought they would have similar rights to those west of the 98th meridian.

Senator CASE. The Senator understands that the allocation of cost by the Corps of Engineers bears no relationship to the allocation of reimbursability by the Bureau of Reclamation with respect to the Missouri River program.

Senator CARROLL. That raises my next question. Does the Bureau of Reclamation, through its repayment schedule on power, deal with reimbursement?

Senator CASE. I think probably we should pursue that in some detail when we have the Bureau before us. The schedules of the Bureau of Reclamation are not based upon the allocations of cost made by the Corps of Engineers.

Senator CARROLL. We will pursue that when we come to it.

Senator ANDERSON. I have just asked for this breakdown on the $3.5 billion. I am wondering if there is any possibility that extra large assessments were placed against irrigation in order to get interest-free money.

Senator CASE. Senator Anderson, actually, I do not think the law provides for any interest charge on the power under section 5, but the Bureau of Reclamation, in my judgment, is not following the law in section 5.

Senator ANDERSON. The Senator from South Dakota and I, sort of found ourselves together on these questions the other day. I think

when we get through this afternoon, we may find out how the Bureau of Reclamation came to that position that it takes.

Senator CASE. It is going by subparagraph (c) of section 9. I think they cannot take part of section 5 and put this money into the miscellaneous receipt of the Treasury, unless they follow the rest of section 5 and submit the rates to the Federal Power Commission.

Senator ANDERSON. I am very much interested in that point of view. It will be interesting to get that testimony this afternoon. I quite agree with Senator Case that if you do not have some power to repay most of these projects would be bad.

You had a great deal of difficulty showing that many of the projects in the upper Colorado Basin, which are very dear to the heart of the Senator from Colorado and me, are feasible without the power revenues that flow from the dams.

I wonder if you have a feeling that it was a proper allocation to charge only a third to power in this Missouri River Basin project.

I do not have the figures before me.

Mr. CAULKINS. I thought it best that I not include all of the figures of the breakdown, Senator, in my testimony. I certainly feel that power is paying all of its share.

Senator ANDERSON. If it is paying 89 percent, it is paying a very substantial share. I am curious as to what the rest of that $3 million is charged to.

Mr. CAULKINS. There is a substantial portion of it that is allocated to irrigation, and some, of course, to fish and wildlife, and recreation.

Senator ANDERSON. Those are not reimbursable.

Mr. CAULKINS. Those are the reimbursable items. This is only in reference to the reimbursable portions, Senator. The nonreimbursable of flood control and navigation is not included in this.

Senator CARROLL. Do you mean to say that power is paying for fish and wildlife?

Mr. CAULKINS. I am not identifying it, Senator, as a specific item, but of the reimbursable allocations included in this presentation, power is scheduled to repay 89 percent of the allocation.

Senator ANDERSON. I wish you would check the last testimony. I do not believe that flood control is paid for out of power revenues.

Mr. CAULKINS. I say it is not a reimbursable cost. These are only the reimbursable.

Senator ANDERSON. In your answer a moment ago, you included both wildlife and everything else, as the things that power is to pay for and I do not believe it pays for them at all.

The total of reimbursable items referred to the other day runs $3,458 million and includes irrigation, $2,235 million; commercial power, $1,144 million; recreation, $7,000,600; fish and wildlife, $16 million; and the Buford-Trenton work, investigations, $55 million.

But flood control, which runs $1,849 million, is not reimbursable and $1,959,000 of fish and wildlife are not, and the Rapid City fish and wildlife water supply is not.

Mr. CAULKINS. I was in error there, Senator.

Senator ANDERSON. Maybe I was in error. Maybe I asked the question improperly. For the record, I wanted to be sure that the irrigation cost of $2,235 million is the main reason why these power charges

have to be fairly substantial on the present ruling of the Department of the Interior.

It is the big item that is being repaid by power, is it not?

Mr. CAULKINS. That is right, sir.

Senator CASE. I think in the figures just below the line you are reading, it is obvious that the allocation to commercial power was $1,144,238,000, but power is being called upon to repay $3,066,450,000.

Senator ANDERSON. Precisely. I was pointing that out, that $2,235 million is set up on irrigation. I do not know how many acres of land is involved in that, but that is a pretty large charge to irrigation.

Senator CASE. That irrigation, of course, is for a large part, in the investigatory stage. That allocation assumed the possible irrigation of many hundreds of thousands of acres of land, some of which the feasibility has not yet been determined.

Incidentally, for the record, and since you read the line on Rapid City Airbase water supply, that $1,037,000 is not reimbursable as far as being charged to any of the other users is concerned, but at the time that arrangement was made, the airbase at Rapid City was about to spend some money on drilling deep wells.

In the funds of the Air Force, an allocation was made so that that was a bookkeeping transaction as between the Air Force and the Bureau of Reclamation as if it had been paid. It was just transferring the money from one pocket of the Government to another.

The Senator understands, I am not being critical of that at all. I was merely wondering if the charges for irrigation had been made a little large in order to make it interest-free money.

Senator CARROLL. It raises one question with me. If the allocation of power is $1,144,238,000, and the irrigation costs are $2,235,749,000, do I understand, from the repayment schedule, that power is to repay this irrigation cost?

Mr. CAULKINS. It will repay a portion of it, Senator.

Senator CARROLL. So you say the repayment schedule calls for $3,066,405,000? Is that still your conclusion?

Mr. CAULKINS. Yes, that is the portion of the reimbursable cost that power is expected to pay.

Senator CARROLL. And it is still paying 89 percent, then, of the total?

Mr. CAULKINS. Yes.

Senator CARROLL. I think that is the important point.

Senator CASE. I think it may be true, Mr. Chairman, and I think this should be developed when we get the other witnesses, that the rate of power may not be changed substantially because of that, because the power features may be scheduled to be paid out within a certain number of years and the amount that power would pay for irrigation may not be applied until after this term of 40 or 50 years has expired.

On the other hand, if power paid out its own cost and was assessed only its own cost, it would be paid out perhaps by the end of 50 years. Then, there would be a very substantial drop in rates, presumably, because the capital cost would have been retired. It might not mean any immediate relief for the power users because that irrigation cost assessed to power may not be applied, so to speak, in the rate structure until after the first power allocation has been completed.

Senator CARROLL. This would be a good point to say to the Senator from New Mexico when we get into it this afternoon. It will be a good thing to keep in mind that you will have your power repayment schedule, which is much shorter.

For example, in the Frying Pan Arkansas project, it runs 50 years and in the others it runs 50 years. Then it will come into play. This is one of the things that we will discuss this afternoon. It is a very interesting bookkeeping transaction.

Senator ANDERSON. That is why I raised the question the other day. The rates for power have to be high enough to take care of the irrigation, was the point. It is my contention that they did not need to be higher, but it was purely an arbitrary decision of the Department of the Interior.

On the point that Senator Case makes, that I happen to agree with, that you did not charge all of this $2 billion of allocation against it, once the repayment period of 40 years was through, these power rates would drop to a very fraction of what they now are. The question is, do you want the power rate effective, or do you still want to try to accumulate this $2 billion for the irrigation of 4 million acres of land, the cost of which will be an average of $500 an acre, but will be way in excess of $1,000 on many acres of land, and $1,300 an acre on some of them.

After you get it under irrigation, you have a real problem as to whether it has been worthwhile to put the water on it, at that figure. We have that problem.

I want to say that I think the day will come when we will well afford to do it, and probably these projects will not be ready until then. But we certainly have trouble at the present.

Senator CASE. I would hate to have the power users pay for some theoretical irrigation which never comes to pass.

Senator ANDERSON. Exactly. That is the point I was trying to make the other day. If we were sure that at the end of 40 years we were going to need to put these 4 million acres under irrigation in that part of the country, then probably it would be justified to keep power rates high to do it.

But if you are not sure, then the power rate ought to more nearly reflect the cost of amortizing the investment in the dam itself.

Senator CASE. And if the power facilities have a longer life than 40 years, it seems to me that a part of the power cost could be put into the final payment of that 40 years and recontract it so you could get the benefit of the lower rate earlier.

Senator ANDERSON. I would think the power facilities would have a useful rate of 100 years, at least, and probably more. We will come to that later on.

Senator CARROLL. You may proceed.

Mr. CAULKINS. The analysis presented by Mr. Bradley states that the following power rates were used:

Firm energy	5.5 mills per kilowatt-hour
Nonfirm energy	3.3 mills per kilowatt-hour
Irrigation pumping energy	2.5 mills per kilowatt-hour
Excess capacity for peaking	$15.00 per kilowatt

You will note from exhibit A that for the year 1956, firm energy sales in Iowa for all preference customers were at the rate of 5.12 mills

per kilowatt-hour, and sales of nonfirm energy, preference and nonpreference, were at the rate of 2.836 mills per kilowatt-hour instead of the rates quoted by Mr. Bradley.

(The exhibit referred to was as follows:)

EXHIBIT A.—*Power sales and revenues, Missouri River Basin project, Iowa, current year 1955 and January–September 1956*

CALENDAR YEAR 1955

	Kilowatt-hours	Dollars	Mills per kilowatt-hour
Preference customers:			
REA cooperatives:			
Lyon REC	8,869,017	45,439.82	5.12
Osceola Electrical Cooperative	6,289,229	32,078.55	5.10
Subtotal REA cooperatives	15,158,246	77,518.37	5.11
Municipality: Rock Rapids	4,344,180	21,428.23	4.93
Total, preference customers	19,502,426	98,946.60	5.07
Nonpreference customer: Iowa Public Service Co	30,035,040	76,887.19	[1] 2.56

JANUARY TO SEPTEMBER, 1956

Preference customers:			
REA Cooperatives:			
Cherokee County REC	2,133,432	10,656.42	4.99
Harrison County REC	4,175,676	20,662.77	4.95
Ida County REC	2,094,570	10,424.57	4.98
Lyon REC	7,651,224	34,248.01	5.00
Monona County REC	3,397,824	16,759.48	4.93
Nishnabotna Valley REC	6,974,352	35,247.48	5.05
O'Brien County REC	2,042,856	10,304.77	5.04
Osceola Electric Cooperative	5,232,600	26,397.46	5.04
Plymouth Electric Cooperative	3,119,976	15,540.35	4.98
Sioux Electric Cooperative Association	3,038,164	15,802.99	5.17
South Crawford REC	3,037,968	15,515.33	5.11
Woodbury County REC	1,902,096	9,500.13	4.99
Subtotal REA cooperatives	44,820,738	225,059.76	5.02
Municipalities:			
Onawa (firm)	1,707,480	8,363.17	4.90
Onawa (secondary)	1,088,121	3,380.29	3.11
Rock Rapids	3,218,100	16,269.16	5.06
Sioux Center (firm)	243,415	1,255.93	5.16
Sioux Center (secondary)	1,290,885	4,080.63	3.16
Subtotal municipalities (firm)	5,168,995	25,888.26	5.01
Subtotal municipalities (secondary)	2,379,006	7,460.92	3.14
Total, all preference customers (firm)	49,989,733	250,948.02	5.02
Total, all preference customers (secondary)	2,379,006	7,460.92	3.14
Nonpreference customers: Iowa Public Service Co	122,717,040	346,723.89	[1] 2.83

[1] Dump energy—available only upon declaration by the United States.

It is entirely possible that actual rates in other States where much more enrgy was sold were less than those shown in Mr. Bradley's analysis. On this basis, the revenue from Iowa sales was deficient almost $98,000 with only a partial year of service.

Extended over the payoutperiod, this would amount to several million dollars. If the payout analysis is correct, it means that rates would have to be raised or more firm power sold. Slack water navigation would provide substantially more firm power that could even lead to lowering rates.

There is ample market for the firm power in the marketing area and the preference customers are willing to pay for it—they are not asking for it free as the preferred shipping interests are doing by asking for free waterways.

Shown in exhibit B are the actual requirements of the NIPCO members from 1950 through 1956 and estimated requirements through 1970. Presently our members have contracts totalling 44,155 kilowatts and we estimate this will be used some time in 1960.

(The exhibit referred to was as follows:)

EXHIBIT B.—*Kilowatt-hour and kilowatt demand data for 10 NIPCO members*

ACTUAL

Year	Kilowatt-hours in thousands	Kilowatt demand	Year	Kilowatt-hours in thousands	Kilowatt demand
1950	65, 478	18, 760	1954	105, 611	28, 150
1951	77, 922	20, 710	1955	116, 721	32, 000
1952	85, 064	22, 580	1956	119, 217	30, 280
1953	93, 658	25, 290			

ESTIMATED

1957	126, 000	35, 000	1964	212, 000	56, 000
1958	138, 000	38, 000	1965	225, 000	59, 000
1959	151, 000	41, 000	1966	240, 000	62, 000
1960	164, 000	44, 000	1967	256, 000	65, 000
1961	176, 000	47, 000	1968	272, 000	69, 000
1962	187, 000	50, 000	1969	290, 000	74, 000
1963	200, 000	53, 000	1970	310, 000	79, 000

In other words, we have enough power to last for another 3 years. At that time, additional power must be purchased from other suppliers at a much higher cost, or install generating equipment.

Review of this data shows that our needs will increase substantially, thereby providing a market for more firm power. Present estimates of the Corps of Engineers indicate initial service from the Oahe powerplant to be December 1961. This means that additional firm power will not be available to Iowa before 1962.

At the same time negotiations were being carried on for firm power by the members of Northwest, several municipalities were also negotiating for Missouri River power. Power for these municipalities would be wheeled over NIPCO lines and connections to our system would be made by the municipalities concerned.

The entire expense of these connections was to be borne by the municipals. Presently, 5 of these municipals are receiving service from the Bureau by means of NIPCO lines and 3 more will be receiving service from the Bureau in a few months.

Perhaps others would want power if there was any available. There is no firm power available to them, and there is no indication that any new allocations will be available for several years at least. Several of these are smaller communities and their power requirements are not very large.

In every case that I know of, they have been required to purchase only firm and secondary power. Dump power was available only to large users such as profit utilities. Dump power is, of course, less expensive than firm or secondary. This is another example that the preference customers are not getting the preference afforded the nonpreference customers.

My exhibit C shows the pattern of energy sales by months in Iowa during 1956. We believe it is clearly demonstrated in this tabulation that free-flowing navigation is a wasteful method of operating the Missouri River. It can be seen that navigation releases made nonfirm energy available to some extent during each of 9 months.

(The exhibit was as follows:)

EXHIBIT C—*Missouri River Basin, eastern division, region 7 power sales to customers in Iowa for 1956*

[Kilowatt-hours]

	Firm sales to preference customers	Non-firm sales to preference customers	Sales to non-preference customers		Firm sales to preference customers	Non-firm sales to preference customers	Non-firm sales to non-preference customers
January	1,941,672	0	0	July	9,135,091	283,689	19,532,000
February	2,026,026	0	0	August	10,178,059	264,244	16,184,000
March	1,910,868	0	1,971,640	September	10,591,231	226,222	15,765,000
April	2,536,740	0	22,012,400	October	10,284,027	233,679	12,402,000
May	5,523,133	751,661	22,536,000	November	11,916,541	0	2,601,000
June	6,146,913	853,190	24,716,000	December	14,136,129	0	0

Date of initial service to Iowa customers

Manning (emergency)	Dec. 14, 1956.
Onawa	Apr. 19, 1956.
Primghar	Sept. 25, 1956.
Rock Rapids	Dec. 2, 1954.
Sioux Center	Apr. 23, 1956.
Iowa Public Service Co	Sept. 6, 1955.

Firming up capacity in federally owned thermal plants would to a large extent, compensate for this wasteful operation and produce the revenue to pay off the investment in thermal facilities.

Since navigation interests pay nothing for the water released for their use, there could be no conflict with navigation interests. The preference power users would be paying for the investment in these thermal facilities and such a program should be supported by both the preference users and the navigation interests. It should be clearly understood that this would have no detrimental effect on navigation or other uses of Missouri River water.

I would like to summarize my testimony by stating that we favor (1) a long-range program of construction to provide slack water navigation facilities and an adequate channel; (2) immediate construction of federally owned thermal generating plants to correct the present wasteful use of Missouri River water; (3) making presently produced seasonal power available to preference customers for irrigation uses at the rates available to USBR constructed irrigation pumping projects; (4) establishing a single management agency to operate the Missouri Basin project; (5) selling all energy in accordance with established preference provisions of the Flood Control Act.

I believe that will conclude my testimony, Mr. Chairman. I would like to also make available some time for the other witnesses who are to appear.

I do appreciate the opportunity that we have been given and the discussion that it has aroused.

Senator CARROLL. Thank you very much. You are very courteous to save time, which seems to be very valuable here this morning.

Senator CASE. Mr. Chairman, I think we ought to particularly ask the Corps of Engineers to comment on the suggestion of the development of slack water navigation as opposed to free-flowing navigation. That is a definite point that Mr. Caulkins has raised, which has come up so sharply before.

Senator CARROLL. Senator Case, we will do that. I do not suppose you want it done at this time, but at the proper time when they present their testimony.

Senator CASE. That is correct, Mr. Chairman, when they present their testimony.

Senator CARROLL. Without objection, the statement of Senator Schoeppel, of Kansas, and of Angus McDonald of the National Farmers Union will be incorporated into the record at this point.

(The statement of Senator Schoeppel is as follows:)

STATEMENT FILED BY SENATOR ANDREW F. SCHOEPPEL, UNITED STATES SENATOR FROM THE STATE OF KANSAS

I regret that previous engagements in my own State of Kansas prevent me from attending the joint session of the Senate Committees on Interior and Insular Affairs and Public Works, in connection with their inquiry on problems relating to the operation of multiple-purpose projects in the upper reaches of the Missouri River Basin. I appreciate the situation that confronts the good people of the Dakotas, Montana, Minnesota, Iowa, Wyoming, and Nebraska with respect to their desire for low-cost hydroelectric power from the Missouri Basin system.

On the other hand, the people of my own State of Kansas and nearby States are concerned with receiving adequate flows of the Missouri River for the maintenance of minimum navigation, river regulation and related purposes. Not only the commerce, but the health and well-being of millions of people along the Missouri are at stake.

We desire to see our cities and towns along the Missouri maintained so that they may continue to grow and prosper.

It is my hope that the committees will find a happy solution for the problem so that the Missouri River Basin States may continue a united front in behalf of this great development that has contributed so much to the stability of the vast area of the country.

(The statement of Angus McDonald is as follows:)

STATEMENT OF ANGUS MCDONALD, ASSISTANT LEGISLATIVE SECRETARY OF THE NATIONAL FARMERS UNION, RELATING TO THE PROPER USE AND DISPOSITION OF RESOURCES IN THE MISSOURI BASIN.

Mr. Chairman and members of the committee, we call attention to certain resolutions of the National Farmers Union adopted at the biennial convention in Denver, Colo., March 23, 1956. These resolutions in principle are similar to resolutions passed by county, State, and National Farmers Union conventions for many years. The resolutions entitled "Using America's Natural Resources for All," are as follows:

"1. COMPREHENSIVE RIVER VALLEY DEVELOPMENT

"We urge further Federal development of natural geographic areas to promote better use of all existing natural resources of entire river valley basins in order to improve the economic stability of such areas, promote conservation and wise use to prevent erosion and flood. The basins should be organized along completely integrated lines of local control similar to the Tennessee Valley Authority. We also urge that emphasis of such projects continues to be placed on generation of public power, with full respect to preference clauses, irrigation improvements aimed to benefit development of family type farms, and wisest possible wildlife management.

"Provisions must also be made for continuation and expansion of the small water shed flood prevention and agricultural soil, water and related resources

conservation program both before and after establishment of such valley developments. Such programs of development should include but not be limited to: intensification and expansion of existing conservation programs on both private and public land; reforestation and revegetation to protect watersheds and increase timber and forage; increased appropriations for conservational management and development of all resources; and construction and maintenance of timber and stock access roads in national forests. We must make use of all scientific and technological advancements to increase conservation of all natural resources. Necessary action must be taken to halt the destruction and depletion of our land and our forests.

"We strongly recommend the enactment of laws making it mandatory for the executive branch to submit to Congress for prior approval any action it intends to take that would sell or grant proprietary privileges in federally owned land or resources to private interests. Approval to make such transactions would be granted only in those cases where it is clearly shown that the general national welfare will be promoted by alienation of title.

"2. DEVELOPMENT AND REGULATION OF ENERGY AND POWER

"We urge establishment of clear-cut Federal legislation and policies to establish clearly Federal responsibility to produce, regulate, and control public power through programs of area development on the basis of all-inclusive support of a total national program. We urge Federal generation and transmission of the power required to meet the present and future needs of nonprofit electric systems and the use of the withdrawal clause to protect the rights of preference customers. The Federal Government must assist cooperatives and other nonprofit public power agencies to set up generating and transmission facilities where needed by supplying technical and financial support. The Federal Government must construct and operate the high voltage transmission facilities necessary to integrate individual hydroelectric projects and to deliver appreciable portions of their output to the load centers of preference customers.

"The Federal Government must purchase or generate sufficient thermal energy to supplement the hydroelectric capacity of the Federal system so that the maximum amounts of firm power can be made available for the benefit of preference customers.

"We urge that any electric or other utility, engaged in interstate commerce and enjoying guaranteed profits without risk while operating as a private monopoly with Government protection, be prevented from counting as costs in ratemaking the money spent, either directly or indirectly, to influence political action at any level. We urge amendment of the Internal Revenue Act to preclude charging off such expenditures as those mentioned above as tax deductions. We recommend legislation requiring that the benefits from accelerated tax amortization be passed on to consumers.

"We urge establishment of regional development agencies to assure proper use of the Federal hydroelectric power and provide for optimum conservation and development of all values of areawide projects such as flood control navigation, irrigation and recreation. Such development would utilize the highest possible potentials of multipurpose users and benefits including flood control, navigation, recreation, and water for industry, cities, and irrigation.

"We insist that the water rights of farmers be adequately protected. We advocate strict limitations on the discretion of the Federal Power Commission to grant licenses for private development wherever such developments conflict with a multipurpose Federal program. Violation of the Federal preference clauses by the Department of the Interior, by a policy of deceit and subterfuge which includes refusal to sell Federal power to cooperatives and municipalities, must be forestalled. We should remove all limitations on areas served by nonprofit electric utilities.

"We also urge that the technical assistance program of the Rural Electrification Administration be restored and its borrowing authority expanded.

"We urge Congress to enact legislation prohibiting Federal agencies from turning over any economically feasible Federal power sites to private companies. We also urge the authorization by the Congress of such multipurpose projects including Hells Canyon, Niagara, and Kings River.

"We urge preservation of the excess lands provisions governing the use of water in Federal irrigation projects in the Federal reclamation law.

"We insist that Congress either authorize the expenditure of funds for the Tennessee Valley Authority, to take care of the growing and critical power short-

age in that area, or authorize the sale of bonds by the Tennessee Valley Authority which would provide funds for expansion. We oppose the recommendation of the administration requiring TVA to repay funds greatly in excess of amortization requirements as determined by Congress.

"In regard to allocation of costs of multipurpose projects, we oppose the substitution of the joint costs-remaining-benefits method for the incremental costs method in the southwestern area. We urge the enactment of legislation prohibiting the Department of the Interior from arbitrarily substituting one system of cost allocation for another. We also recommend that the period of amortization be increased from 50 to 100 years."

A word should be said about the historical position of the National Farmers Union in regard to the proposal for a Missouri Valley Authority. The National Farmers Union, over a period of years, assumed the leadership of the so-called MVA Committee, which labored so fruitfully in the field of public resource development. The pattern recommended by this committee was similar to the one developed in the Tennessee Valley, where a Commission was appointed by the head of our Government to administer the TVA program as outlined by Congress.

While Farmers Union still emphasizes the need for implementation of the valley authority idea, we realize that piecemeal development in the valley by the Army engineers and by other agencies must be taken into account. While we believe that the agency or agencies which administer programs in the Missouri Valley should be consistent with the ideas underlying valley authorities, we do not believe that any rigid administrative rule should be set up without further study of the very complex problems which exist in the valley.

We feel strongly, however, that the principles underlying our resolutions should be followed and the resources should be developed in a way to benefit the greatest number of people possible and to utilize all of the multiple-purpose developments, including flood control, electric power generation and distribution, navigation, irrigation, and recreation.

It should be recognized that water is a limited resource in the Missouri Basin and that there is no substitute for it; and for this reason, we concur in the conclusions of the Missouri Basin Survey Commission in regard to priorities of uses of water. They are as follows: (1) Domestic and municipal consumption and pollution control; (2) irrigation, including ground water recharge, and industrial consumption; (3) hydroelectric power; (4) fish, wildlife and recreation; and (5) navigation.

Attention is called to testimony and facts developed at this hearing. We think it safe to conclude that facts indicate that the Army engineers have not wisely utilized water in the Missouri Valley and have not adhered strictly to the intent of the O'Mahoney-Millikin amendment to the Flood Control Act of 1944. We recommend that this committee of the Senate direct the Army engineers to follow to the letter the recommendations of the Survey Commission.

In regard to power we are told by the representatives of the rural electric cooperatives in the area that they are facing an imminent power shortage and that this power shortage, which will be disastrous to the farmer, results from bad management of existing facilities by the Federal agencies charged with the responsibility for operating the existing projects and from the lack of a satisfactory overall plan and program.

The mismanagement which the cooperatives complain of has wide ramifications but a principal point is that water which is sorely needed for power generation is being released instead for navigation. I want to make it clear at the outset that I think navigation needs should be met as far as possible, but not at the expense of power needs. When the water is needed for power generation, it should be used for power generation. That would appear to be a necessary policy if we are to meet the essential needs of our farmers for electric power.

This sound policy is written into the Flood Control Act of 1944 by the O'Mahoney-Millikin amendment. By the terms of that amendment the water is to be used for navigation only to the extent that such use does not conflict with the use of the water for certain listed other purposes including "industrial purposes," and obviously power generation is an industrial purpose. Therefore, when both sound policy and the law require that the water be used first for power generation, there is no justification whatsoever in diverting water from power generation to navigation. Therefore, the National Farmers Union joins with the rural electric cooperatives to request that the committee correct that situation: that you require the Government agencies charged with the responsibility for the

proper operation of the Government project in the Missouri River Basin to operate those projects in conformity with this sound policy and law.

This we request is something that can be done now and until a final and overall program is worked out for the best use of the waters for everyone. Two long-range solutions have been offered, both of which should be adopted and put into effect. First, there should be slack-water navigation so that the maximum use of the waters can be made for both power generation and navigation. Secondly, steam generation should be provided to firm up to its maximum use the hydrogeneration in the area. Although I am not, myself, an engineer, I have had convincing explanations by experts that the maximum benefits of this hydrogeneration can be realized only if it is joined with and firmed up by steam generation. And this is especially true in the Missouri River Basin where large deposits of low-cost lignite in North and South Dakota make it possible to have very low-cost steam generation.

This is a subject that has disturbed us for a long time. We have never heard any satisfactory reason why this hydropower has not been firmed up. We cannot understand why Government projects must be operated on an uneconomic basis. If it is good economics to firm up this hydrogeneration by steam generation so that you end up in a better economic position through greatly increasing the amount of the more valuable firm power, then there is no excuse for this not being done. This would be true even if there were no conflict in the need for the water between power generation and navigation. It becomes all the more necessary when there is such conflict.

We, therefore, urge you to take care of the immediate situation by requiring that power generation be given the first call on this water as against navigation. And that you also immediately initiate the steps necessary to provide both slack-water navigation and firming steam power so that the maximum development may be had to the greatest benefit of all users.

I thank you for this opportunity to present this statement.

Senator CARROLL. We also have a statement from Milo W. Hoisveen which will be made a part of the record at this point.

STATEMENT OF MILO W. HOISVEEN, BISMARCK, N. DAK.

My name is Milo W. Hoisveen and I live in Bismarck, N. Dak. I am the secretary and chief engineer of the North Dakota State Water Conservation Commission, the official State agency having control and jurisdiction of our water resources development, and I am also the State Engineer.

At the request of the Governor, I have served on the Missouri River Coordinating Committee on the main-stem reservoir operation since August 1954.

This coordinating committee has been confronted with a period of four adverse waterflow years on the Missouri River. The demands for water, however, have been increasing during that time.

The present major uses of Missouri River reservoior water are: municipal and industrial, irrigation, navigation, and power generation. As a result of the low flow, little gain has been made in storing water in the reservoirs constructed for such purpose. The reservoirs have, however, enabled seasonal flows to be spread in a manner most beneficial to all of the listed users but not to the extent desired.

The two users most adversely affected by curtailed releases are the navigation and power interests. Both have, no doubt, invested heavily in equipment with which they conduct their enterprises. Both interests have been carefully considered by the committee in its endeavors to allocate water to them on an equitable basis.

Minor disputes usually develop in the committee over the allocations to be made to these interests. I do not believe, however, that anyone on the committee feels these differences of opinion to be serious. They are, I am confident, the honest convictions of each of the members, who in turn is responsible to the State or agency he represents. These differences are always settled in accordance with traditional normal democratic procedure.

Certainly, such differences will be recurring but they are not serious. Each representative recognizes his responsibility on the committee.

An uncompromising attitude on the part of any one individual on the committee could jeopardize the much-needed development of the entire basin.

North Dakota is embarking upon the development of the world's largest irrigation project. This is known as the Garrison Diversion Unit. It will divert water

from the Garrison reservoir for the irrigation of one million acres in central and eastern North Dakota. Over the next 50 to 75 years the ultimate development may be twice as great.

The generation of power can be accomplished through many means other than the use of water, such as with coal, oil, gas and nuclear energy. Only precipitation in the form of rain and snow provided by nature, stored and conserved by man, can supply precious water needed for irrigation.

We in North Dakota are primarily concerned with and interested in knowing that the use of water for navigation is subordinated to the use for irrigation. Under the present provisions of the so-called O'Mahoney-Millikin amendments in the Flood Control Act of 1944 such protection is guaranteed irrigation water. The generation of hydroelectric power is only one of the multiple purposes for which the Missouri River Basin project was authorized. We are content for the time being to entrust our irrigation interest to the protection afforded by the present provisions of that act.

I feel that the coordinating committee on main-stem reservoir operation on the Missouri River should continue under the present arrangement and as now constituted: If it can successfully operate under the adverse flow years we have recently experienced, the committee's success in the future is assured.

Senator CARROLL. The next witness is Mr. Severson.

STATEMENT OF HARLAN SEVERSON, EDITOR, SOUTH DAKOTA HIGH-LINER, AND STAFF MEMBER, MADISON DAILY LEADER

Mr. SEVERSON. Mr. Chairman, and gentlemen of the committee, my name is Harlan Severson. I am the editor of the South Dakota High-Liner, official monthly publication of rural electric cooperatives of South Dakota. With a circulation of nearly 65,000, this monthly publication has the largest circulation in South Dakota.

I am also a staff member of the Madison Daily Leader, a daily newspaper which contracts with rural electric cooperatives of South Dakota for production of the High-Liner.

My testimony is brief. Let me call your attention to several documents that I believe are germane to the important topic being discussed here.

The first of these is the record of power sales in the eastern division of the Missouri Basin for the calendar year 1956. This record is in the form of a letter to Representative George McGovern from W. A. Dexheimer, Commissioner of the Bureau of Reclamation. This letter is attached to the end of this written statement.

The letter lists the customers, separates them by States and the type of power sold to them.

The figures in this letter were tabulated for a story in the South Dakota High-Liner. This tabulation shows that a total of 2,387,842,128 kilowatt-hours were generated at the main-stem dams, Fort Peck, Garrison, Fort Randall and Gavins Point, in calendar year 1956. This power was sold for $9,362,808.25.

The amount of power in millions of kilowatt-hours that each group received, and the percentage of the total amount available is:

[Millions]

	Kilowatt-hours	Percent		Kilowatt-hours	Percent
Private power companies	894.7	37.6	Municipalities	120.0	5.0
Rural electrics	766.2	32.0	Federal Government	40.0	1.7
Public power districts	562.1	23.5	State governments	4.6	.2

Thus, the power companies, which opposed these dams in every way possible, are now receiving the big benefit from them.

For this 37.6 percent of the total power available, the power companies paid only 28.9 percent of the total power bill.

A large part of the power sold to them was either secondary or dump, which sells for 2 or 3 mills per kilowatt-hour.

Rural electrics, municipalities and public power districts received the firm power, at an average cost ranging between 5 to 5.5 mills.

The facts are, of course, that firm power, that which is available 24 hours a day, 365 days a year, is more valuable and the cost should be more.

Secondary and dump power are available for shorter periods of time, and thus are less valuable.

The significant fact, the tabulation verifies, is that only slightly more than half of the total power being produced is firm power, with about a fourth being secondary and the other fourth being dump.

In other words, the dams are being operated so that large amounts of this cheaper power is being made available for the benefit of primarily one group—the private power companies.

The case of Canyon Ferry Dam in Montana is a good illustration of this.

The Montana Power Co. purchased 294,833,886 kilowatt-hours from this dam in 1956 at an average cost of 2.5 mills per kilowatt-hour.

This is either all—or virtually all—of the entire output of this dam, sold at these "giveway" rates.

Tabulation of the power sales reveals many other interesting facts. Here is how the power was distributed among the States:

	Percent
Montana	18
North Dakota	23
South Dakota	22
Iowa	9
Minnesota	6
Nebraska	22

A more graphic illustration of the fact that the private power companies are receiving a large share of the available power is included in the Daily Operating News of the Sioux Falls division of Northern States Power Co.

I quote: "USBR sent us over 1 million killowatt-hours Thursday."

This Daily Operating News was for Thursday, April 18, 1957.

I am confident that an investigation of the power sales made to these power companies and the rates charged to their consumers would show that the savings these companies are receiving from this river power is not being returned to their consumers.

The power marketing criteria of the Bureau of Reclamation specifically states that these savings should be returned to the consumers.

Let me turn now to another document. It is the audit report to the Congress of the United States, Missouri River Basin water resources development program, for the fiscal year ended June 30, 1955, by the Comptroller General of the United States.

On page 5 there appears this statement:

We believe that the lack of policies and criteria to be applied in making allocations of construction costs and the existing confusion and responsibility for making these allocations should be resolved by legislative action. Accordingly, we are recommending that the Congress provide policies and criteria to be applied for making allocations of construction costs of multiple-purpose projects, the results of which serve as a basis for establishing rates for commercial power.

We are recommending that the Congress designate specifically the agency to make the allocation where one agency is authorized to construct the project and another agency is authorized to market the products of the project. The Congress may wish also to clarify the role of the Federal Power Commission on these allocations for future multiple-purpose projects including power.

May I briefly point out here that the objectives outlined here by the Comptroller General of the United States are also the objectives of the so-called Trimble bill. Rural electric cooperatives of South Dakota have passed resolutions supporting this bill.

The crux of this entire problem, that is, water, is summed no better, I believe, than in an editorial that appeared recently in the St. Louis Post-Dispatch. Speaking of the priority, this metropolitan newspaper comments:

> Some such priority as that of the 1944 act is in order, for whereas water is a prerequisite of prosperity in the humid part of the region, in the subhumid part it is a prerequisite of survival.
>
> Since the Army engineers are primarily responsible for navigation, there will always be room for doubt that they are assigning proper weight to the uses of impounded water for irrigation power, fish and wildlife.
>
> Our region is paying, in the waste of precious water, the price of divided, incomplete management of our water-control works. We are ready to demand and keep on demanding, until it is forthcoming from Congress and the President, a single agency of management of our interstate water resources.

There have been, and there are now, bills introduced in the Congress that would create such a single agency. The bill now introduced is that of Senator Hennings, of Missouri, which would create a commission to manage the river and the land and water resource development of the Missouri Basin.

The South Dakota Rural Electric Association has repeatedly asked for such an agency in numerous resolutions passed at its annual meetings.

Congress must act soon if the land and water resources of the Missouri Basin are to be developed for the people.

At the end of the statement, there is a tabulation of the power sales in the eastern division of the Missouri Basin, and we wish to have that as part of the published report.

(Tables referred to follow:)

Firm power sales during calendar year 1956, Missouri River Basin, eastern division

	Kilowatt-hours	Revenues	Average mills, kilowatt-hour
MONTANA			
Cooperative utilities:			
Goldenwest Electric Cooperative	3,904,200	$20,745.98	5.31
Hill County Electric Cooperative	11,106,440	56,755.70	5.11
Marias River Electric Cooperative	29,704,470	143,506.16	4.83
McCone County Electric Cooperative	14,175,480	72,751.52	5.13
Mid Yellowstone Electric Cooperative	8,592,006	42,738.85	4.97
Northern Electric Cooperative	9,449,806	47,054.70	4.98
Sheridan County Electric Cooperative	15,915,096	78,047.75	4.90
Southeast Electric Cooperative	4,979,436	24,250.54	4.87
Tongue River Electric Cooperative	1,436,599	7,563.09	5.26
Valley County Electric Cooperative	4,390,557	23,090.63	5.26
Lower Yellowstone	10,031,592	51,594.69	5.14
Subtotal	113,685,682	568,099.61	5.00
Privately owned utilities:			
Montana Dakota Utilities Co. combined with North Dakota			
Montana Power Co	33,633,425	161,314.91	4.80
Special irrigation service:			
Buffalo Rapids Farms	10,236,332	25,590.83	2.50
Board of Control, Savage	752,943	1,882.37	2.50
Malta Irrigation District, Dodson	139,750	349.28	2.50
Intake Irrigation District	48,568	121.42	2.50
Kinsey Irrigation District	1,438,860	3,597.15	2.50
State water conservation board, Sidney	960,527	2,401.33	2.50
U. S. Indian Service	1,053,053	2,632.64	2.50
Crow Creek pumping	1,553,600	3,884.00	2.50
Subtotal	16,183,633	40,459.02	2.50
Bureau of Reclamation Project Service:			
Canyon Ferry Camp	951,100	3,804.40	4.00
Tiber Dam	696,393	2,785.58	4.00
Subtotal	1,647,493	6,589.98	4.00
Miscellaneous service:			
School district No. 21	36,940	738.80	20.00
State fish and game department	34,854	226.17	6.49
Subtotal	71,794	964.97	13.50
SOUTH DAKOTA			
Cooperative utilities:			
Cam-Wal Electric Cooperative	7,529,269	37,389.49	4.97
Central Electric Cooperative Association	7,724,113	39,275.54	5.08
Cherry-Todd Electric Association	5,240,000	27,122.82	5.18
Fem Electric Association	7,992,006	40,665.37	5.09
Grand Electric Cooperative	8,923,160	44,276.11	4.96
Moreau Grand Electric Cooperative	7,203,024	35,862.85	4.98
Northern Electric Cooperative	2,174,296	11,028.52	5.07
Rosebud Electric Cooperative	12,284,352	63,968.04	5.21
Rushmore Generation and Transmission	34,424,616	175,881.15	5.11
Beadle Electric Cooperative [1]	3,877,240	19,104.44	4.93
Bon Homme-Yankton Electric Association [1]	4,727,437	23,192.18	4.91
Charlie Mix Electric Association [1]	2,672,448	13,527.15	5.06
Clay Union Electric Cooperative [1]	5,926,682	28,759.57	4.85
Codington-Clark Electric Cooperative [1]	5,226,179	26,215.37	5.02
Douglas Electric Cooperative [1]	1,994,667	10,004.36	5.02
H-D Electric Cooperative [1]	5,169,960	25,874.33	5.00
Inter-County Electric Association [1]	7,358,351	36,438.58	4.95
Kingsbury Electric Cooperative [1]	2,278,211	10,990.25	4.82
Lake Region Electric Association [1]	5,143,368	25,808.22	5.02
Lincoln-Union Electric Co. [1]	7,610,260	38,161.48	5.01
McCook Electric Cooperative [1]	3,868,625	18,981.88	4.91
Northern Electric Cooperative [1]	3,812,462	19,136.17	5.02
Ree Electric Cooperative [1]	2,791,445	13,744.79	4.92
Sioux Valley Empire [1]	22,098,761	108,081.37	4.89
Spink Electric Cooperative [1]	3,079,938	15,190.19	4.93
Traverse Electric Cooperative [1]	2,303,429	11,689.94	5.08
Tri-County Electric Association [1]	4,239,117	20,907.96	4.93
Turner-Hutchinson Electric Cooperative [1]	9,923,963	48,603.70	4.90
Union County Electric Cooperative [1]	2,184,953	10,570.78	4.84
Whetstone Valley Electric Cooperative [1]	5,038,129	26,050.63	5.17
East River Electric Cooperative, Inc. [2]	78,519,223	400,040.93	5.09
Subtotal	283,339,684	1,426,544.16	5.03

See footnotes at end of table.

Firm power sales during calendar year 1956, Missouri River Basin, eastern division—(Continued)

	Kilowatt-hours	Revenu	Average mills, kilowatt-hour
SOUTH DAKOTA—continued			
Municipalities:			
Aberdeen	1, 254, 396	$7, 711. 66	6. 15
Arlington	2, 151, 230	10, 942. 20	5. 09
Badger	181, 968	1, 441. 37	7. 92
Big Stone City	848, 368	4, 171. 90	4. 92
Bryant	431, 460	2, 207. 23	5. 12
Brookings	7, 553, 510	39, 882. 50	5. 28
Burke	1, 328, 448	7, 008. 04	5. 28
Flandreau	5, 328, 750	26, 880. 00	5. 04
Fort Pierre	1, 747, 680	8, 810. 32	5. 04
Groton	2, 076, 138	10, 508. 85	5. 06
Howard	2, 536, 128	12, 404. 42	4. 89
Langford	556, 512	2, 846. 28	5. 11
Madison	13, 349, 964	62, 954. 15	4. 72
Miller	4, 173, 024	20, 149. 13	4. 83
Parker	1, 146, 534	5, 756. 80	5. 02
Pierre	11, 625, 370	58, 854. 98	5. 06
Plankinton	1, 017, 756	5, 425. 80	5. 33
Sioux Falls	5, 284, 440	24, 367. 33	4. 61
Volga	1, 287, 196	6, 479. 26	5. 03
Vermillion	2, 810, 304	13, 267. 84	4. 72
Watertown	6, 774, 159	35, 870. 07	5. 30
Winner	6, 036, 000	31, 003. 50	5. 14
Subtotals	79, 499, 335	398, 943. 63	5. 02
Agencies of State government:			
Brookings State College	246, 870	3, 371. 52	13. 66
Redfield State Hospital	822, 589	3, 857. 52	4. 69
University of South Dakota	328, 032	1, 916. 17	5. 84
Subtotal	1, 397, 491	9, 145. 21	6. 54
Other Federal utilities: Ellsworth Air Force Base	13, 038, 000	63, 407. 97	4. 86
Privately owned utilities:			
Black Hills Power & Light Co	3, 275, 180	14, 814. 44	4. 52
Central Electric & Gas Co	21, 000	97. 31	4. 63
Subtotal	3, 296, 180	14, 911. 75	4. 52
Domestic employees	6, 415	51. 82	8. 08
Commercial and industrial: Donovan-Lovering-Boyle	74, 400	2, 563. 19	34. 45
Bureau of Reclamation Project Service: Angostura Camp and Dam	41, 693	188. 96	4. 53
NORTH DAKOTA			
Municipalities:			
City of Lakota	1, 349, 995	6, 929. 49	5. 13
City of Valley City	6, 098, 129	30, 489. 13	5. 00
Subtotal	7, 448, 124	37, 418. 62	5. 02
Cooperative utilities:			
Burke Divide Electric Cooperative	7, 243, 384	37, 321. 69	5. 15
Capital Electric Cooperative	3, 630, 568	18, 101. 92	4. 99
James Valley Electric Cooperative	5, 244, 534	26, 927. 89	5. 13
Kern Electric Cooperative	11, 679, 165	58, 873. 32	5. 04
McKenzie Electric Cooperative	7, 601, 629	38, 494. 77	5. 06
Minkota Power Cooperative [2]	26, 011, 493	126, 714. 32	4. 87
Mor-Gran-Sou Electric Cooperative	13, 905, 265	70, 339. 19	5. 06
Montrail Electric Cooperative	7, 764, 750	37, 612. 50	4. 84
North Central Electric Cooperative	3, 277, 872	16, 482. 23	5. 03
Oliver-Mercer Electric Cooperative	6, 102, 351	31, 541. 58	5. 17
Slope Electric Cooperative	10, 125, 112	51, 929. 85	5. 13
Verendrye Electric Cooperative	1, 674, 433	8, 486. 27	5. 07
West Plains Electric Cooperative	10, 749, 501	54, 420. 93	5. 06
Williams Electric Cooperative	7, 617, 766	38, 142. 22	5. 01
Subtotal	122, 627, 823	615, 388. 68	5. 02
Privately owned utilities: Montana-Dakota Utilities Co. [3]	64, 657, 190	301, 988. 77	4. 67

See footnotes at end of table.

Firm power sales during calendar year 1956, Missouri River Basin, eastern division—(Continued)

	Kilowatt-hours	Revenues	Average mills, kilowatt-hour
NORTH DAKOTA—continued			
Agencies of State government:			
Grafton State School	23,680	$375.13	15.84
North Dakota State Hospital	1,266,820	5,252.77	4.15
North Dakota State School of Science	114,816	696.13	6.04
Subtotal	1,405,316	6,324.03	4.50
Special irrigation service:			
Buford-Trenton Irrigation District	1,235,580	3,088.95	2.50
Fort Clark Irrigation District	247,520	618.85	2.50
Lewis and Clark Irrigation District	451,290	1,128.23	2.50
Subtotal	1,934,390	4,836.03	2.50
Bureau of Reclamation project service:			
Corps of Engineers, Garrison	3,427,200	16,786.59	4.90
Heart Butte Dam	22,512	90.05	4.00
Subtotal	3,449,712	16,876.64	4.89
IOWA			
Municipalities:			
Manning	27,234	26.08	4.63
Onawa	3,381,300	16,294.07	4.82
Primghar	486,005	2,488.28	5.12
Rock Rapids	4,321,740	21,814.53	5.05
Sioux Center	889,827	5,047.22	5.67
Subtotal	9,106,106	45,670.18	5.02
Cooperative utilities:			
Cherokee County Rural Electric Cooperative	4,614,786	23,489.64	5.09
Harrison County Rural Electric Cooperative	6,709,356	33,667.78	5.02
Ida County Rural Electric Cooperative	4,417,110	23,963.89	5.43
Lyon Rural Electric Cooperative	10,394,208	52,960.50	5.10
Monona County Rural Electric Cooperative	5,482,908	27,519.66	5.02
Nishnabotna Valley Rural Electric Cooperative	11,580,264	59,016.82	5.10
Osceola Electric Cooperative	6,875,820	35,191.78	5.12
O'Brien County Rural Electric Cooperative	4,157,928	21,450.43	5.16
Plymouth Electric Cooperative	6,489,342	33,935.24	5.23
Sioux Electric Cooperative	6,373,368	33,070.38	5.19
South Crawford Rural Electric Cooperative	5,656,410	29,483.08	5.21
Woodbury County Rural Electric Cooperative	4,468,824	22,696.03	5.08
Subtotal	77,220,324	396,445.23	5.13
MINNESOTA			
Cooperative utilities: Southwestern Minnesota Cooperative	14,419,944	74,465.51	5.16
NEBRASKA			
Municipalities: Dewitt	458,717	2,387.60	5.20
State government utilities: Nebraska Public Power System [2]	468,008,571	2,168,415.36	4.63

[1] Cooperatives transferred to East River Power Cooperative, Inc., July 9, 1956.
[2] Based on application of rate schedule before deduction of rate discount due to United States being relieved of wheeling charges.
[3] Includes energy delivered in Montana as well as in North Dakota.

Secondary energy sales during calendar year 1956, Missouri River Basin, eastern division

	Kilowatt-hours	Revenue	Average mills, per kilowatt-hour
MONTANA			
Cooperative Utilities: Marias River Electric Cooperative	16,237,390	$52,910.01	3.26
Privately owned utilities combined with North Dakota			
NORTH DAKOTA			
Cooperative utilities:			
Central Power Electric Cooperative	47,324,913	149,606.75	3.16
Minnkota Power Cooperative	91,408,969	283,931.32	3.11
Subtotal	138,733,882	433,538.07	3.12
Municipalities: City of Valley City	4,936,575	16,540.21	3.35
Privately owned utilities:			
Montana-Dakota Utilities Co.[1]	111,299,168	335,951.75	3.02
Otter Tail Power Co.[2]	84,048,793	276,105.39	3.29
Subtotal	195,347,961	612,057.14	3.13
Agencies of State government: North Dakota State TB Sanatorium	214,792	744.85	3.47
SOUTH DAKOTA			
Municipalities:			
Brookings	7,143,420	22,228.14	3.11
Plankinton	91,023	284.53	3.13
Volga	125,454	390.44	3.11
Watertown	8,638,265	28,074.02	3.25
Subtotal	15,998,162	50,977.13	3.19
Privately owned utilities:			
Central Electric and Gas Co	10,482,226	34,920.36	3.33
Northwestern Public Service Co	83,282,879	274,088.85	3.29
Subtotal	93,765,105	309,009.21	3.30
Agencies of State government:			
Brookings State College	1,356,143	4,444.93	3.28
Redfield State Hospital	147,905	459.69	3.11
Subtotal	1,504,048	4,904.67	3.26
Commercial and industrial: Western Contracting Corp	3,646,872	12,147.36	3.34
IOWA			
Municipalities:			
Onawa	1,088,121	3,380.29	3.11
Sioux Center	1,524,564	4,825.59	3.17
Subtotal	2,612,685	8,205.88	3.14

[1] Includes energy delivered in Montana as well as North Dakota.
[2] Includes energy delivered in South Dakota as well as North Dakota.

Peaking power sales during calendar year 1956, Missouri River Basin, eastern division

	Kilowatt-hours	Revenues	Average mills, kilowatt-hour
MINNESOTA			
Municipalities: City of Moorhead (peaking power only)	None	$3,660	

Dump energy sales during calendar year 1956, Missouri River Basin, eastern division

	Kilowatt-hours	Revenues	Average mills, per kilowatt-hour
MONTANA			
Privately owned utilities:			
Montana Power Co.:			
Canyon Ferry	294,833,886	$737,084.72	2.50
Fort Peck	8,908,106	22,270.27	2.50
Subtotal	303,741,992	759,354.99	2.50
NORTH DAKOTA			
Privately owned utilities: Northern States Power Co	11,491,265	34,626.77	3.01
SOUTH DAKOTA			
Privately owned utilities:			
Black Hills Power & Light Co	3,415,925	11,955.74	3.50
Northern States Power Co	47,647,000	112,288.21	2.36
Subtotal	51,062,925	124,243.95	2.43
NEBRASKA			
State government utilities: Nebraska Public Power System	94,177,002	230,662.13	2.45
IOWA			
Privately owned utilities: Iowa Public Service Co	137,720,040	389,804.05	2.83

Mr. SEVERSON. On behalf of Mr. Virgil Herriott, who was also scheduled to attend this morning, I have his prepared statement and I should like to make it a part of the record.

Senator CARROLL. Without objection, it is so ordered.

(Statement referred to follows:)

STATEMENT BY VIRGIL H. HERRIOTT, GENERAL MANAGER, SIOUX VALLEY EMPIRE ELECTRIC ASSOCIATION, INC., COLMAN, S. DAK.

Mr. Chairman and gentlemen of the committees, since 1953 I have been general manager of the Sioux Valley Empire Electric Association, an REA-financed rural electric distribution cooperative.

Prior to assuming my present position, I was manager of the Codington-Clark Electric Cooperative of Watertown, S. Dak., for 4½ years. Prior to that, I was employed by the Guthrie County Rural Electric Cooperative of Guthrie Center, Iowa, for 2 years. Both of these systems were likewise REA-financed rural electric cooperatives. I was born and raised on a farm and know, firsthand, how important dependable electric service is to the farm.

Our cooperative serves an area of over 2,500 square miles along the eastern edge of South Dakota. It provides electric service to approximately 7,650 installations, which, by class of service, is approximately 5,500 farms, 650 residential consumers in rural villages, 350 rural residences, and the rest are cottages, lake resorts, and commercial users in both rural villages and in rural areas.

Our cooperative first began operations in 1939, and is now the largest in South Dakota, in terms of the number of consumers served.

Our cooperative serves rural villages located within its service area, the largest of which has a population of about 700 people.

Our cooperative has continually and aggressively sought to encourage widespread use of electricity by its members, because of the value to the members in relieving drudgery, elevating their standard of living, and last, but certainly not least, for increasing their net profit. If electricity is thus to be used on the farm, in the home, in the stores, machine shops, locker plants, and other such places, the supply must be dependable.

As the retail supplier of electricity within our area, we must accept utility responsibility to our consumers. This utility responsibility must apply to quantity and quality alike, and we must, therefore, deal with those who supply our power in such a way as to be able to fulfill our utility responsibility.

A basic problem of most South Dakota rural electric cooperatives has been the failure of any organization to assume true utility responsibility for meeting their electrical needs. This includes not only the providing of the power, but also the providing of adequate substation and transmission facilities, properly operated and maintained.

Due to the lack of acceptance of utility responsibility by previous power suppliers, 21 distribution cooperatives in eastern South Dakota banded together to form the East River Electric Power Cooperative. The East River cooperative was formed with the understanding that the Federal Government was constructing multipurpose dams on the Missouri River and that large amounts of hydro power would be available to the cooperatives as preference users. We assumed that the Federal Government would accept utility responsibility for the production of power to meet our needs and to provide the backbone transmission lines to deliver this power to the major load centers of the preference users. East River's role was to be to deliver the Federal power from these major load centers to the individual distribution cooperative's load centers. East River and the Federal Government would then, together assume that utility responsibility for an adequate, dependable source of power so vital to our members' success. We, as a power supplier, could then fulfill our utility responsibility to our members and consumers.

The Bureau of Reclamation began delivering hydro power at approximately the same time the Missouri Basin Marketing Criteria was issued, which denied any utility responsibility on the part of the Federal Government. It was then necessary for the East River member cooperatives to revise their contractual arrangements with the Federal Government so that East River could accept utility responsibility for the member cooperatives and East River would, in turn, negotiate with the Bureau of Reclamation, and others, if necessary, in order that they could meet their utility responsibility obligation to their member cooperatives.

I charge that the Bureau of Reclamation, in the operation of their transmission system, has not provided us with a dependable supply of electric power. We recognize that they have not accepted utility responsibility as to the amount of power which we will need, but certainly, so long as they have a transmission system to deliver their available power, it should be operated in such a manner as to provide dependable service.

I will cite an example of the Bureau of Reclamation's failure properly to provide facilities and properly to operate them. Their continued mismanagement has hampered us in our attempt to assume our responsibilities to our consumers.

When the Bureau of Reclamation system was constructed, Oerlikon switches were installed in some of the Bureau substations. These switches are foreign made and were bought on a competitive bid basis. Our operating experience with the Bureau of Reclamation has been anything but good with these switches. The Bureau has had a fairly good operating record since their first shakedown tests, except for this equipment.

From January 10, 1954, to January 10, 1957, some 20 service interruptions have occurred and outage time has resulted from the misoperation of this equipment and from the Bureau's failure to carry out good operating practices. We have done our best to cooperate, but cooperation is a two-way street.

I am attaching to my testimony the log of Oerlikon switch failures as reported by the East River Electric Power Cooperative for the period from January 10, 1954, to January 10, 1957. The most lengthy single service interruption was 2 hours and 33 minutes. This service interruption affected 18 distribution cooperative substations, serving several thousand rural and village consumers. As to frequency of operation, I would point out that at one particular substation, service interruptions varying from 9 minutes to 1 hour and 15 minutes occurred on November 3, 13, 14, 15, and December 9, 1955. An examination of the outage log will show reoccurring misoperation of these switches at several substations.

The examination of the outage log will also show why we charge that the Bureau is guilty of mismanagement in the operations of its facilities. How can we provide dependable service, if this type of operation continues when it could be improved?

Our farm members, as well as our village members, depend on a nearly continuous supply of electric power. An outage on Saturday afternoon during the Christmas shopping season certainly brings business activity to a halt in a rural village and causes serious inconvenience to all consumers. If it were due to adverse weather conditions, I am sure that most people would understand the cause and accept it. It is hard, however, for them to accept the cause for the service interruption when they know it is due to the faulty operation of the system and its equipment, especially when it has a long record of faulty operations.

This mismanagement by the Bureau of Reclamation—that is, their failure to replace this equipment with tried and proven equipment which will operate properly—and their failure to follow good operating practices is a source of aggravation and creates costly service interruptions to our members and consumers.

Our cooperative has had this same experience of faulty equipment. We have, however, replaced our faulty equipment with proper equipment so as to be better able to assure our members a continuous supply of electric power.

Our operations and maintenance practices have been such as to provide a high quality of service, both from a standpoint of adequate voltage and on as continuous a basis as is possible in face of the natural elements.

Mr. V. T. Hanlon, manager of the East River Electric Power Cooperative, in a letter dated January 2, 1957, addressed to Mr. E. Vere Stalcup, United States Bureau of Reclamation, Huron, S. Dak., stated that he believed that the East River Cooperative would be willing to supply suitable oil circuit breakers in lieu of these switches, if the Federal Government could not see fit to do so. It does not appear to be a matter of economy on the part of the Bureau, because it is such a small item compared to the total investment by the Government in transmission facilities in this system. There maintenance, operation, and replacement costs on these switches must be an extremely expensive item. The Bureau of Reclamation seems to have little trouble in purchasing proper equipment to sell dump or secondary power to the electric utilities. It seems, therefore, that they certainly ought to provide suitable equipment to serve the preference users, who are purchasing the firm power, with a quality of service that is standard with the industry.

The power available from the multipurpose development of the Missouri Basin, together with the Bureau of Reclamation transmission system, is essential to the continued success and growth of our rural electric cooperative. We do not believe, however, that the Bureau of Reclamation is accepting their responsibility, in this instance, as they should.

If our members are to have a dependable supply of electric power our cooperative, East River, and the Bureau of Reclamation must accept their individual responsibilities for their respective operations. The Bureau of Reclamation has not been willing to cooperate with us on these problems, in spite of our offers to cooperate with them. It is typical of the attitude which has been exhibited in the operation of the river itself and of the wasteful manner in which water has been used. I hope that this committee and the Congress of our Government will be able to see to it that the interests of the people are looked after more carefully in the operation of the basin facilities. It is a great and wonderful development and can mean so much, not only to the people of the basin, but to all of the people of our country.

LOG OF OERLIKON SWITCH FAILURES, UNITED STATES BUREAU OF RECLAMATION, EAST RIVER LOOP

January 10, 1954, to January 10, 1957

January 10, 1954: 115-kilovolt switch No. 262 at Watertown failed to close. Outage time, 1 hour, 43 minutes; substations affected, 7.

March 25, 1954: 115-kilovolt switch No. 1462 at Watertown failed to close. Outage time, 1 hour; substations affected, 7.

May 31, 1954: 115-kilovolt switch No. 262 at Sioux Falls failed to close. Outage time, 1 hour, 27 minutes; substations affected, 11.

September 5, 1954: 115-kilovolt switch No. 162 at Mount Vernon failed to close. Outage time, 2 hours, 33 minutes; substations affected, 18.

February 10, 1955: 69-kilovolt switch No. 452 at Beresford—15° below—switch partly closed and burned up contacts. Switch No. 652 would not close—too cold. Outage time, 1 hour, 45 minutes; substations affected, 7.

February 10, 1955: 69-kilovolt switch No. 1552 at Sioux Falls failed to rewind. Outage time, 1 hour, 50 minutes; substations affected, 3.

June 28, 1955: 69-kilovolt switch No. 652 at Mount Vernon failed to rewind. Outage time, 1 hour, 43 minutes; substations affected, 3.

September 20, 1955: 69-kilovolt switch No. 652 at Mount Vernon failed to close. Outage time, 1 hour; substations affected, 3.

November 3, 1955: 115-kilovolt switch Nos. 162 and 262 at Brookings failed to rewind. Outage time, 1 hour, 15 minutes; substations affected, 4.

November 13, 1955: Same as above.[1] Outage time, 51 minutes.

November 14, 1955: Same as above.[1] Outage time, 32 minutes.

November 15, 1955: Same as above.[1] Outage time, 9 minutes.

December 9, 1955: Same as above.[1] Outage time, 40 minutes.

December 14, 1955: 69 kilovolt switch No. 1552 at Sioux Falls, flashed through to ground blew base apart. Outage time, 1 hour, 36 minutes; substations affected, 3.

January 21, 1956: 69-kilovolt switch No. 452 at Beresford, blew up same as above. Outage time, 46 minutes; substations affected, 7.

January 27, 1956: 69-kilovolt switch No. 2752 at Watertown, partially opened Outage time, 1 hour, 12 minutes; substations affected, 4.

April 6, 1956: 115-kilovolt switch No. 162 at Mount Vernon failed to operate. Outage time, 1 hour, 17 minutes; substations affected, 6.

December 13, 1956: 115-kilovolt switch No. 562 at Sioux Falls failed to close. Outage time, 20 minutes; substations affected, 7.

December 28, 1956: 69-kilovolt switch No. 1552 at Sioux Falls flashed back to ground, blew up base casting. Outage time, 38 minutes; substations affected, 3.

January 10, 1957: 69-kilovolt switch No. 1552 at Sioux Falls, same as above on different phase. Outage time, 35 minutes; substations affected, 3.

Mr. SEVERSON. Mr. Frank Lindley, an earlier witness, referred to 2 resolutions, 1 passed by the Community Club of the city of Chamberlain and another by the city of Chamberlain. He referred to these and said they would be inserted later. He did not have them with him at that time. He has given them to me, and I request that they be inserted in the record.

Senator CARROLL. Without objection, it is so ordered.

(Resolutions referred to follow:)

RESOLUTION

Be it resolved by the Community Club of the city of Chamberlain, S. Dak., That

Whereas at the time the original plans were explained to the people in the city of Chamberlain it was indicated by the Army engineers that the water level of the Fort Randall Reservoir would not be allowed to get below the elevation of 1350 except for extremely rare and temporary periods of time, and

Whereas since the completion of the project the water level has never yet reached the level of 1350 and has been a good share of the time below 1339, and

Whereas American Island had elevation points from 1336 to 1341 so that the water level being as it has been the Island has been exposed a good share of the time, and

Whereas this has resulted in a great increase in the number of mosquitoes in this area and a general unsightliness in approaching the city from the west and actual blowing of dry silt into the city from the exposed island, and

Whereas all of this is contrary to the assurances given the city at the time the project was commenced: Now, therefore, be it

Resolved, That the Community Club of the city of Chamberlain, S. Dak., representing the homeowners and business places therein, by this resolution, make its objections known to the Senate Interior Committee, the Army engineers, and our congressional delegation and that we respectfully urge and request that such water level in the future be not allowed to ge below an elevation of 1345 for the health and well-being of the city; and be it further

Resolved, That a copy of this resolution be transmitted to the Senate Interior Committee, to the Army engineers, to the Honorable Francis Case and to the Honorable Karl Mundt, the United States Senators from the State of South Dakota, and to the Honorable George McGovern, Congressman from this district.

[1] Transformer trouble on the Ottertail-Brookings bank.

I certify that I am the secretary of the Community Club of Chamberlain, S. Dak., and that this resolution was adopted at the club's meeting on the 15th day of April 1957, and that this is a true copy of such resolution.

VICTOR L. NIELSEN.

RESOLUTION

A motion was made by McDonald, seconded by Martin, that the following resolution be adopted: Whereas the Community Club by resolution dated the 15th day of April 1957, called for maintenance of the level of water in Fort Randall Reservoir at a point not lower than 1,345 feet, and

Whereas for the reasons stated in such resolution it is desirable from the standpoint of the city of Chamberlain and this entire area that such water level be so maintained: Now, therefore, be it

Resolved, That the city of Chamberlain endorses the position taken by the Community Club and that a copy of this resolution be furnished to our congressional delegation and the Senate Interior Committee.

Passed unanimously.

E. C. SORENSEN, *Mayor.*

Attest:

DELORA STECKELBERG, *City Auditor.*

I certify that I am the duly and legally appointed, qualified, and acting city auditor in and for the city of Chamberlain, S. Dak.; that the records of the proceedings are kept and maintained by me; that I have carefully examined the within abstract and that it is a true and correct copy of part of the minutes of the meeting of the city commission held at Chamberlain on the 22d day of April, 1957.

DELORA STECKELBERG, *City Auditor.*

Senator CASE. I did not hear the ruling of the Chair, Mr. Chairman, with respect to the insertion of the tables which Mr. Severson requested. I do think that they ought to appear following his statement, as the tables that he referred to are the tables on the sales of power. They answer some questions which were asked here this morning as to whether or not the dump energy sales did take place in 1956. They can appear in the customary type for tables, I believe, but they should be available.

Senator CARROLL. It seems to me that unless there is objection to it, we could have his statement appear in the normal course of the hearings.

Senator ANDERSON. I was hopeful to cut down printing costs.

Will you explain what the significance of the sales to Arlington, Badger, and Big Stone City, and Bryant is in this statement? What does it prove?

Mr. SEVERSON. Taken as a whole——

Senator ANDERSON. You want them in individually. Take them individually. What does it prove? Tell us about the significance of the sale to Badger. How does it help the committee understand the situation?

Mr. SEVERSON. I know of no other way of getting the complete tabulation. Let me say it this way: I know of no other way for the committee to determine exactly what happened to the power other than having this document to refer to.

Senator CASE. Mr. Chairman, if I may suggest, the list, for example, of the municipalities, shows some variation in rates, ranging from 4.72 to as high as 6.15 mills per kilowatt-hour, a considerable variation in the rates. Taking another page of the tables, the last page of the tables suggested, they show how much power was sold as

dump energy during 1956, and answer the important question as to whether or not dump energy was sold only to privately owned utilities or whether dump power was sold to cooperatives and REA's during 1956. They also give the rates at which that power was sold.

If the committee members will note, it does show the sale of dump energy during 1956 at 2.5 mills, in several instances, at the same time that these REA's were paying twice that or more, or that other preference customers were paying more than twice as much as that for firm power and yet were not able to buy all the firm power they wanted. I think it does go to the point that was raised during Mr. Caulkins testimony this morning.

Senator CARROLL. It seems to me that in view of the importance of these tables in connection with the testimony, unless there is some objection as to the additional cost, we ought to include it immediately following his statement, because of the importance of it.

Senator ANDERSON. I will not argue it. We are all the time talking about the expense. Publication of tables of this nature is what runs up the hearing cost. For instance, here is a page given over to peaking power sales during calendar year 1956, Minnesota municipalities, city of Moorehead, peaking power only, kilowatt-hours none, revenue $3,660, average rate none. It leaves me a little cold as to what the rate was. Maybe I should understand it, but I do not. I am willing to have it in the record if it proves anything. I do not know what it proves. Let it go into the record. It is this sort of thing that makes the volume of hearings much larger, when I think they should be filed with the committee as exhibits for when we need them.

I will not object to their going into the record.

Senator CARROLL. Without objection, it is so ordered. They will be inserted into the record.

Mr. SEVERSON. Thank you very much.

Senator CARROLL. I have a letter here from the mayor of the city of New Orleans. The Chair has been requested to insert this letter into the record.

If there is no objection, the statement of the mayor of the city of New Orleans will be included in the record.

(Letters referred to follow:)

CITY OF NEW ORLEANS,
OFFICE OF THE MAYOR,
April 30, 1957.

Hon. DENNIS CHAVEZ,
Chairman, Public Works Committee,
United States Senate, Washington, D. C.

DEAR SENATOR CHAVEZ: The maintenance of satisfactory low water flows in the Mississippi River by the release of impounded waters from the reservoirs located in the Missouri River Basin is an essential factor in supplying potable water for domestic and industrial uses to the city of New Orleans, as such releases preclude salt water intrusion during low river stages from the Gulf of Mexico which would adversely effect the quality of water available for treatment.

As president of the sewerage and water board and mayor of the city of New Orleans, I respectfully urge that no change be made in the present method of operating the Missouri River main stem reservoirs.

Yours very truly,

DELESSEPS S. MORRISON, *Mayor.*

Senator CARROLL. The next witness will be Mr. Alex Radin.

STATEMENT OF ALEX RADIN, GENERAL MANAGER, AMERICAN PUBLIC POWER ASSOCIATION, WASHINGTON, D. C.

Senator CARROLL. You may proceed, Mr. Radin.

Mr. RADIN. My name is Alex Radin. I am general manager of the American Public Power Association, a national trade organization which represents more than 800 municipal and other local publicly owned electric utilities in 40 States, Puerto Rico, and Alaska.

I have been asked to appear here today by a group of our members in the States of Iowa, North Dakota, and Minnesota. Some of these member utilities purchase power at the present time from the Missouri Basin projects, while others have contracts calling for the delivery of such power in the near future. The interest of these utilities in the present hearings stems primarily from the fact that the Bureau of Reclamation in many cases has not fulfilled earlier commitments for power, and consequently these utilities are faced with a most serious problem of power supply.

In the State of Iowa, this problem confronts the Northwest Iowa Municipal Power Group, an organization consisting of 9 municipally owned electric utilities, 6 of which are presently purchasing power from the Bureau of Reclamation, while 3 additional members, Mapleton, Manning, and Denison, expect to begin receiving power within the next 30 days.

I might say that practically all of these utilities purchase power through the lines of the Northeast Power Cooperative, represented here by Mr. Caulkins.

The nine municipally owned utilities comprising the Northwest Iowa Municipal Power Group serve a population of 29,110 people.

The plight of this group is shown graphically in the exhibit A. Column 1 headed "Estimated 1958 peak load" shows the amount of power which this group of utilities originally requested from the Bureau of Reclamation. It will be noted that the total demand of this group was 19,800 kilowatts. However, at a meeting of the prospective power consumers in Sioux Falls, S. Dak., on April 5 and 6, 1954, Assistant Secretary of the Interior Fred Aandahl stated that sufficient power was not available to fulfill the 1958 peak loads of the various power consumers, and he requested those present to agree to approximately 62 percent of their 1958 peak load requirements. The power consumers assented to this request, and the allotments approved at that time for each consumer in the Northwest Iowa Municipal Power Group are shown in column 2 in the attached appendix. You will note that under this allotment the municipal systems were allowed a total of only 12,675 kilowatts as compared with 19,800 kilowatts in their original request.

Shortly thereafter, however, the municipal systems were advised, much to their surprise and disappointment, that instead of the approximately 62 percent allotment, their actual allotment would be reduced still further. The final allotment of power to these systems is shown in column 3 of the attached table, and you will note that the total allowed the member utilities of the Northwest Iowa Municipal Power Group was only 10,200 kilowatts, which represented only about half of their 1958 estimated peak load of 19,800 kilowatts.

(The table referred to follows:)

EXHIBIT A.—*Power allotments to Northwest Iowa Municipal Power Group*

Municipality	Column 1, estimated 1958 peak load	Column 2, allotment, Apr 1, 1954	Column 3, final allotment
Primghar	800	500	500
Rock Rapids	2,500	1,550	1,500
Sioux Center	1,900	1,175	700
Onawa	2,600	2,000	2,000
Mapleton	1,100	675	500
Manning	1,300	800	800
Harlan	3,700	2,300	1,900
Denison	4,800	3,000	1,800
Remsen	1,100	675	500
Total	19,800	12,675	10,200
ALLOTMENTS TO OTHER MUNICIPALS IN IOWA (NOT MEMBERS OF NORTHWEST IOWA MUNICIPAL POWER GROUP)[1]			
Estherville[2]	5,200	3,200	0
Hawarden	1,900	1,175	1,000
Laurens	1,300	800	700
Manilla	550	350	350
Total	8,950	5,525	2,050

[1] Power not yet delivered to any municipality in this group.
[2] Feasibility of transmission to this municipality has been questioned.

Mr. RADIN. During the course of the negotiations with the Department of the Interior in the 5 years prior to 1954, and in the light of the original allotments in 1954, the municipal utilities in Iowa felt that they could realize a definite economic advantage in purchasing Bureau power and in installing substation capacity, rather than purchasing generating equipment for firm power. In fact, in the negotiations with the municipal systems, it was proposed that firm power could be purchased to match the installed generating capacity for each plant.

However, the drastic cut in firm power has resulted in heavy financial burdens for the municipal utilities and has seriously complicated their problem of planning the installation of generating capacity to serve their future needs. For some towns this reduction has brought into question the feasibility of entering into a firm contract for power with the Bureau.

One particularly perplexing aspect of this situation is that, as you will note from the attached table, deliveries of power have never been initiated for some of the municipalities for which firm power had been allotted. Yet, the Bureau has not agreed to increase, even temporarily, the firm power allotments for those municipalities already being served. Instead, it is our understanding that the power which has been allotted to these municipalities, but which is not being delivered to them, is being sold at secondary or dump-power rates to privately owned utilities. We believe that the Government would obtain more revenue and would be adhering to the policy of the Flood Control Act by selling such firm power, even on a short-term basis, to the municipally owned utilities.

With regard to the situation confronting the municipally owned utilities in Minnesota and North Dakota, we call to your attention, and

this association endorses, the testimony presented to this committee by officials of the cities of Valley City, N. Dak., and Moorhead, Minn., both of which are members of our association.

The need for firm power by the city of Moorhead is particularly critical, and as testimony has indicated, that city has already completed the installation of a transmission line necessary to provide Bureau power to Moorhead.

In view of the situation described above, we respectfully recommend that your committees take such steps as are necessary to require the Bureau of Reclamation to fulfill its original contract commitments with the municipal systems in the areas indicated. We also request that all additional firm power becoming available in the future be distributed on an equitable basis to all preference customers in the area.

Information made available at these hearings and through other sources indicates that the releases of water for navigation purposes by the Army Corps of Engineers has resulted in a deficiency of water needed for the fulfillment of the firm power contracts of the municipal systems. We wish to make it clear that we look upon navigation as an important and integral part of multipurpose river development, and experience elsewhere has clearly demonstrated that under proper management and with adequate facilities the interests of navigation can be served as well as the interests of power. In fact, we believe that it is essential to the success of a multipurpose river basin development program to give consideration not only to power and navigation, but also to other important functions such as flood control, fish and wildlife, recreation, et cetera.

Under the present circumstances, however, it seems obvious that the navigation channel can be maintained only to the detriment of the power users; that is, in an adverse water year. Because we believe that it is vital that this river basin program serves both navigation and power, we urge your committees to investigate as promptly as possible the feasibility of installing slack water navigation on the Missouri River. By installing slack water navigation not only would it be possible to serve better the interest of navigation and power, but such a system also would have many other advantages, such as facilitating the stabilization of the river banks and providing better means for irrigation.

In the interim, until remedial steps can be taken through the installation of slack water navigation, it would seem that in an adverse water year a policy of share and share alike should be instituted among the various users of the water, rather than penalizing power production in the interests of full maintenance of the navigation channel. A policy of share alike in adverse water years would still place navigation in a more favorable position than obtained before the dams were constructed, and such a policy would seem to be the minimum that might be expected in view of the O'Mahoney-Millikin amendment, which Senator O'Mahoney himself has interpreted at these hearings as giving power precedence over navigation.

In view of the large amounts of secondary power available from the Missouri Basin projects, we believe your committees also should give attention the problem of firming up such secondary power by such means as would provide the greatest benefits both to the Government and to the power consumers.

In any event, the soaring demands for power and the importance of power in developing the economy of this area would seem to indicate the urgency of maximizing the power potential of this important section of the United States.

Thank you, Mr. Chairman, and members of the committee.

Senator CARROLL. Are there any questions?

Senator HRUSKA. You indicate or recommend on page 3 of your statement, Mr. Radin, that steps, as necessary, be taken to require the Bureau of Reclamation to fulfill its original contract commitments with the municipal system. What contract commitments do you refer to there?

Mr. RADIN. Those were the ones referred to in column 2—the allotment that was originally made in April 1954 and which the municipal system at that time expected would be the amount of power they would receive.

Senator HRUSKA. Were those in the form of consummated contracts?

Mr. RADIN. No, sir, they were not.

Senator HRUSKA That is what confused me. If they are commitments, that is one thing. If they are estimates, that is another thing.

Mr. RADIN. No. I am sorry. That is an error. That is not actually a contract. It is a commitment.

Senator HRUSKA. It would be a forecast.

Mr. RADIN. Yes, sir.

Senator HRUSKA. A tentative commitment.

Mr. RADIN. That is right. I am sorry, that is not an actual contract.

Senator CARROLL. Senator Anderson?

Senator ANDERSON. No questions.

Senator CARROLL. Senator Case?

Senator CASE. No questions, Mr. Chairman.

Senator CARROLL. Mr. Radin, I believe I have 1 or 2 questions. From your statement, it seems that somebody is guilty of gross mismanagement or collusion as a result of the statement that they not only breached their contracts, but they are selling power, secondary, at dump power rates, to privately owned utilities. Is that deliberate? Do you know what the reason is for that? Why would they do that, when there is such a serious loss of revenue?

Mr. RADIN. I do not know why they do that, Senator. I asked an official of the Bureau about that just yesterday or the day before, and he said that their policy has been not to assign firm power to a customer unless they can assure him of a firm power supply for some time in the future. It is our contention that these allotments that have been made to these municipally owned utilities and which have not been delivered to them, could at least be assigned, temporarily, on a firm power basis, to other municipalities that need the power and could use it. We feel that that would be a proper procedure to follow.

I think that is a policy that could have to be explained more by the Bureau than myself. All we know is that the municipally owned utilities are not getting the power that has been assigned to them, some of them have not, because of difficulties in delivery, and we feel that in the interim that power, at least, could be sold on a firm power basis to other utilities that could use it.

Senator CASE. Mr. Chairman, I think that answer should come from the Bureau of Reclamation. I might suggest that I think it has been the Bureau's explanation that the power should be sold on an "if, as and when available" basis, and that could only be sold to those who would have standby equipment which could be brought into play if they cut off the dump power at any particular time.

Senator CARROLL. It is still the policy, I understand, that they make no contracts for firm power commitments——

Senator CASE. When they are only selling dump power. I think, however, that if you had two protectional customers for dump power, one a preference customer and the other a nonpreference customer, and both of them able to supply standby power, that the sale would go to the preference customer.

Senator HRUSKA. Do you know if that is the fact, Mr. Radin?

Mr. RADIN. Yes. Most of these smaller municipally owned utilities do have some generation of their own, in the form of diesel generating systems.

Senator CARROLL. Are they in a position to take this dump power?

Mr. RADIN. So far as I know, they are.

Senator CARROLL. Are they getting it?

Mr. RADIN. So far as I know, they are not.

Senator HRUSKA. Mr. Radin, at page 3, I find myself a little confused. You say—

> Instead, it is our understanding that the power which has been allotted to these municipalities, but which is not being delivered to them, is being sold at secondary or dump power rates to privately owned utilities.

That sentence to me conveys the idea that firm commitments have been made to municipalities and then that power is withdrawn from them, not delivered to them, and sold as dump power. Is that the thought you intended to express there?

Mr. RADIN. Yes. That is my understanding of the situation. I am referring to these utilities on the lower part of my table, exhibit A, those utilities have allotments made to them, but the power is not being delivered to them, for one reason or another.

Senator HRUSKA. Are those allotments for firm power?

Mr. RADIN. Yes, they are.

Senator HRUSKA. And the power which is being sold as secondary or dump power, is that firm power?

Mr. RADIN. I do not know whether it is actually being delivered as firm power, but it is being sold on secondary, dump power rates.

Senator HRUSKA. What is it actually? Is it dump or firm power that is being sold under secondary or dump power rates?

Mr. RADIN. I presume that is actually secondary dump power.

Senator HRUSKA. That is not what your statement says, your statement that it is firm power and that it is being sold as secondary and dump power. That is the reason I asked you for a construction of that sentence. I would not want somebody accused of selling something as dump power which is not actually dump power, unless that were the fact. If you would like to clear that up, I would very much appreciate it.

Mr. RADIN. What I am trying to say is that the Bureau has made allotments of firm power to several municipally owned utilities. Those allotments are not being delivered as firm power. Instead, that

energy is being sold as secondary or dump—is being sold at secondary dump power rates.

Senator HRUSKA. But that power which is being sold as secondary or dump power is not, in truth and in fact, firm power?

Mr. RADIN. Not in the manner in which it is being sold to the other utilities.

Senator HRUSKA. I do not mean as it is being sold. I mean in fact. Is that power which is being sold as secondary or dump power available 12 months of the year at a given level?

Mr. RADIN. I would think it should be, yes.

Senator ANDERSON. And could be by the way it is operated. They operate it to get the dump power. It is exactly as we got the situation up in New England with the reactor. They close it down a few minutes and they sell it all as dump power. For 11 hours and 30 minutes out of 12 hours it is dump power, because for 30 minutes it is closed down.

Senator HRUSKA. Is that the situation here? I should think we ought to have an analysis of that to see whether it is truly secondary or dump power or whether it is an effort to be an evasion such as that which Senator Anderson described.

Senator ANDERSON. The Corps of Engineers can testify on it, I would think, because they are the ones who so classify it.

Senator CASE. That point certainly is important.

Mr. Chairman, there is one possibility that should be kept in mind, and I do not know that this is true. I merely raise it as something to be explored. I think that there have been times when the Bureau of Reclamation found itself unable to deliver the full amount of firm power which it had contracted, and in those outages or times when it did not have the firm power that it contracted to deliver, I think it has gone to some of the private utilities and asked them to supply power at that time so that they could meet their firm power commitments. The utilities have been paid by the allocation of dump power at a time when they have a surplus of power over and above the contracted firm power. If that is true, that may explain some of these sales to utilities of so-called dump power in that it is repayment power for firm power supplied at times when the Bureau did not have the firm power to meet its contracts.

Senator ANDERSON. My only point was that the people who know about it are the real ones who should testify.

Senator HRUSKA. That would probably be the best evidence.

Senator CARROLL. Are there any further questions?

Senator HRUSKA. I wish to say that I am grateful to Mr. Radin for having raised the question so that we can explore it.

Mr. RADIN. Thank you, sir.

Senator CARROLL. Thank you, Mr. Radin.

I have a letter from Mr. Gus Norwood, of the Northwest Public Power Association, Vancouver, Wash., who cannot be present. This is a letter addressed to Senator Murray, the chairman of the committee, and with a voluminous document giving a statement and statistics. I think we might insert the letter into the record and place the accompanying document in the files of the committee.

Without objection, it is so ordered.

(Letter referred to follows:)

NORTHWEST PUBLIC POWER ASSOCIATION, INC.,
Vancouver, Wash., April 29, 1957.

Subject: Suggested amendment of Fort Peck Project Act.

Hon. JAMES E. MURRAY,
Senate Office Building, Washington, D. C.

DEAR SENATOR MURRAY: The purpose of this testimony is to recommend that the present hearings on the water-resources development of the Missouri River be broadened so as positively to solve the power problem.

Our member rural electric systems in eastern Montana are quite concerned over the heavy drafting of Fort Peck Dam Reservoir for navigation to the detriment of power. However, this is a short-range, temporary problem.

In the long run the power problem of the upper Missouri Basin States calls for broader and more decisive action than is suggested by a study of the O'Mahoney-Millikin amendment or the unfortunate policies of Mr. Aandahl.

In my view the Congress should address itself to the decades-long economic depression of these States. It is an electric power depression.

As a principal remedy I would urge an immediate study by the Secretary of the Interior of the feasibility of a million-kilowatt lignite-burning steam plant in North Dakota, and further studies looking toward about 5 million kilowatts of steam. The Secretary and the Corps of Engineers should further investigate the feasibility of increasing the capacity of Missouri River dams to operate for peaking purposes on top of the steam baseload plants similar to the TVA system.

Secondly, I would urge the amendment of the Fort Peck Project Act. This law is identical to the Bonneville Act except that no provision was made for an administrator. Consequently the Bureau of Reclamation has been handling Missouri Basin power as a minor incidental activity.

I respectfully recommend that the Fort Peck Project Act be amended so as to establish a Missouri Basin Development Corporation with a five-man board of directors along the lines that the Northwest Public Power Association is recommending for amending the Bonneville Project Act to create the Columbia River Development Corporation.

Enclosed is a draft of the proposed amendment of the Bonneville Act and a memorandum explaining its desirability.

With minor changes in wording this could be made applicable to Missouri Basin needs.

Solving the power problems of North Dakota, South Dakota, eastern Montana, and most of Wyoming will have a salutary effect on an area of fine, sturdy people and good resources but starved for energy.

Sincerely,

GUS NORWOOD, *Executive Secretary.*

Senator CARROLL. The next witness will be Mr. Clyde Ellis, of the National Rural Electric Cooperative Association, and he will be accompanied by Mr. Charles Robinson.

Senator HRUSKA. Mr. Chairman, before he commences his testimony, may I say that this morning I was in receipt of a phone call from Mr. DeBoer, manager of the Nebraska public power system. It is his desire, with the leave of the committee, to send a statement for the record. I was requested to ascertain whether it would be possible to hold the record up for that purpose. It will be forthcoming in the next day or two.

Senator CARROLL. I see no reason why the record should not be kept open.

(The statement referred to follows:)

SUPPLEMENTARY COMMENTS BY D. J. DEBOER IN CONNECTION WITH SPEECH BEFORE THE MISSOURI BASIN INTERAGENCY COMMITTEE, LINCOLN, NEBR., MAY 1, 1957

At this point I would like to depart from the printed text for just a moment or two. We feel that we have here in Nebraska a reclamation project of the first water. Of particular interest to the Interior Department and the Bureau of

Reclamation ought to be the fact that our farmers are furnishing the wells and the equipment to pump water from our underground resources including all the necessary ditches, pipe, etc., and in addition are willing and anxious to pay for the power to operate the wells. All we are asking of the United States is to build this line from Fort Randall to Grand Island, the cost of which our farmers will repay over a period of time by buying pumping power from the Missouri Basin and paying firm-power rates for this power. The Federal Government, therefore, gets additional revenue which it otherwise would not get and Nebraska reclaims its natural resources for productive use.

I want to discuss one other matter which involves the entire basin just briefly. I am referring to the hearing which is currently in progress before the Senate Public Works Committee in Washington, and which involves a controversy between the upriver basin States who claim that storage water is being improperly and illegally released for navigation purposes at the expense of power generation and the lower basin States who obviously are interested in navigation. I am concerned about this controversy because if we permit a division of opinion between the navigation people and the power people to continue, Congress may very well say, "A plague on both your houses," with the result that the ultimate development of the Missouri Basin and even the construction of the Big Bend Dam and powerhouse may be delayed or stopped. I would like to suggest and I humbly submit for the consideration of this committee that this problem might better be resolved through cooperation. We in Nebraska as well as various other utilities in the basin have excess thermal generating capacity available in the wintertime. We should arrange to exchange this thermal capacity to be used by the upper basin States for power supply in the winter months, when their peak demand occurs, for excess hydro capacity in the main stem dams during the navigation season which we in Nebraska as well as others can advantageously use in the summertime to meet our summer loads.

SPEECH BY D. J. DEBOER, EXECUTIVE DIRECTOR, NEBRASKA PUBLIC POWER SYSTEM, COLUMBUS, NEBR., BEFORE MISSOURI BASIN INTER-AGENCY COMMITTEE, LINCOLN, NEBR., MAY 1, 1957

HYDROPOWER PULLS THE SWITCH ON DROUGHT

Mr. Chairman, Honorable Governors, distinguished guests, and members of the Missouri Basin Inter-Agency Committee.

It is a pleasure to talk to you today about a subject that is close to all of us. It is a serious subject. And yet, it is a subject with some strange paradoxes—in Nebraska, at least.

According to one reliable estimate, the drought in Nebraska in the past few years has caused an estimated loss in crop value alone of from 35 to 60 million dollars. Indirect losses to our businesses and industries were far greater.

Nebraska is basically an agricultural State, and, when something hurts our farmers, it hurts us all.

And yet, Nebraska is in an unusual position among the States in the Missouri River Basin. It is the only State which lies entirely within the basin and it is the only State in the Nation which is wholly public power. But, more important, Nebraska is unique in having an abundance of that one great resource that can whip a drought, and the one resource that none of us can do without—water. The Great Creator certainly endowed this State. There are more miles of rivers, flowing surface waters, in this State—I must add that in recent years there hasn't been too much flowing—than in any other State in the basin. And underneath our great sandhills region in the west and north central part of the State, as well as along the Platte River Valley, lies one of the greatest underground lakes ever found by man. More than 2,500 carefully controlled test borings show these ground-water resources to be 316 trillion gallons—970 million acre-feet—the equivalent of 10 years' total annual rainfall in Nebraska.

To store this tremendous amount of water above ground would require a tank as large as the entire State, 20 feet deep.

Our State resources people tell us that the annual accretion to our ground water supply is 8 million acre-feet and that we are currently using for all purposes, domestic, industrial and agriculture, only 3 million acre-feet.

One of our industries in the eastern part of the State, the Nitrogen Division of Allied Chemical & Dye Corp., draws up to 40 million gallons of water per day from 21 proven shallow wells at an approximate depth of 60 feet. Another case in point is the recent announcement of the Campbell Soup plant to be located near Kearney. These are examples of what man can do with Nebraska's water resources in industry. The same works for agriculture.

Nebraska believes in using this underground water as well as the water in its many rivers for better farming, more food production and incidentally for electric power. With a total of 2,300,000 acres of land now under irrigation, the State ranks among the top five in the Nation in development of irrigation farming.

Now you could well ask, "What does a power man, an electrical engineer by profession, have to say about irrigation that might be of interest to this group?"

I would be the first to admit that I know very little about the proper application of water to land, or of the various and many technical details in this old, yet mushrooming field.

But since the development of the hydroelectric power projects in this State, the Nebraska Public Power System has become a partner with more than 10,000 irrigation farmers. In recent years, at least, these irrigation farmers have produced more than half of Nebraska's total corn crop from less than one tenth of the farming area of the State.

We in public power in Nebraska like to think we have helped this irrigation program to grow and prosper. Prosperous agriculture means prosperity for all.

But let me explain more how power men happened to get involved in the irrigation business.

We must remember that hydropower in Nebraska is the child of drought and depression. It was in the 1930's in the midst of drought in Nebraska and nationwide business stalemate that the three major hydroprojects were conceived and born.

The Nebraska Public Power System is jointly owned and operated by two of these public power, or hydro, districts, Platte Valley Public Power and Irrigation District at North Platte, and the Loup River Public Power District at Columbus. As a wholesale generating and transmission agency, NPPS also buys all of the power produced by Central Nebraska Public Power and Irrigation District headquartered at Hastings which latter district is one of the original "big three."

Since inception, the Loup has been mainly a power-producing agency but the Platte and Central Districts, particularly, have been deeply involved in irrigation. These two districts operate hydroelectric powerplants with a total capacity of 80,000 kilowatts and a system of reservoirs capable of storing more than 2 million acre-feet of water, and canals which extend more than 150 miles along the Platte River from Ogallala to near Grand Island and Hastings. In this area 216,000 acres are irrigated by gravity flow each year. This drought-free section annually produces crops valued at more than $15 million.

But the greatest growth in irrigation in Nebraska is in pump irrigation, or tapping that huge lake underlying Nebraska's fertile soils. Nebraska today has more than 20,000 irrigation wells.

This compares with about 15 wells in 1920, about 800 in 1930, and about 3,000 in 1940. In 1956 alone 4,500 new wells were added. The total number of irrigation wells in Nebraska has more than doubled in the past 6 years. A goodly number of these wells—about 5,000 to be more exact—are powered by electricity supplied by Nebraska Public Power System. And more and more farmers are turning to electricity to drive their irrigation pumps because of its reliable service, lower maintenance costs, and ease of installation and care.

But this growth of pump irrigation creates a problem to power people in the State. The irrigation pump load last year in our service area, covering the eastern two-thirds of the State, totaled 74,099 kilowatts, or enough power to supply the combined normal needs of Lincoln, Grand Island, and Hastings, three of Nebraska's larger cities.

By 1959, we in Nebraska Public Power System believe this load will increase to more than 100,000 kilowatts, and by 1963, the electric pump irrigation load, if it continues to grow at the same rate, should reach a total demand of nearly 200,000 kilowatts.

Again our resources experts tell us that we can safely use an additional 2,500,000 acre-feet from our ground water lake without serious depletion.

As a result of this increasing pumping demand we have a severe seasonal strain on the facilities of the Nebraska Public Power System. Prior to 3 years ago,

NPPS' peak demands in the wintertime exceeded our peak summer demand. Today, our summer demand is some 28 percent higher than our winter peak demand—and the spread is growing.

This summer irrigation load together with air conditioning and other hot-weather loads which skyrockets electricity demand for a relatively short period cannot be economically met by the construction of steam generating plants. Any such plant built to satisfy these needs alone would stand idle 9 or more months of the year. Power produced by it would be prohibitive in cost to Nebraska irrigators. Our only answer is more low-cost hydroelectric power.

Naturally, we dedicate our own hydroelectric plants to this summer demand since the release of gravity flow irrigation water comes coincident with the pumping demand. But we need more. The answer to this lies to the north of us in the main-stem dams and powerplants on the Missouri River.

These Missouri River plants produce excess power in the summer as a result of the release of additional water for navigation, which incidentally, is one of the multiple-purpose uses to which the Missouri Basin project is dedicated. Since this power is not "year around" or firm, it either must be sold at dump rates, generally running a mill or two per kilowatt-hour less than firm rates, or it must be sold as seasonal firm power to an area, like Nebraska, which can use excess hydroelectric power in the summer and is ready to pay firm rates for it.

At the present time, Nebraska has two 115,000-volt connections to Missouri River power sources. Both of these are short-distance lines and connect with only the fringes of our system. The Nebraska Public Power System is building a third 115,000-volt connection from Gavins Point to Neligh to help meet this year's summer irrigation demands. This third line is a stopgap measure—it cannot take care of our projected pump irrigation demand.

Nebraska's permanent answer to this growing summer demand is the construction of a heavy-duty 230,000-volt transmission line from Fort Randall to a central Nebraska load center such as Grand Island.

As you know, we have asked Congress to authorize this line, at a cost of approximately $9 million, for the past 2 years. This year will be our third try. We realize that the Fort Randall-Grand Island line has become a controversial subject, and I do not care to discuss the line at this time. Suffice it to say, that Nebraska feels it is entitled to the same treatment as other States in the Basin, all of which have had high-voltage lines constructed to serve their load centers by the Federal Government—all, that is, except Nebraska.

In conclusion, I would like to say something about public power in this State. Our great hydroelectric-irrigation system was set up more than a quarter century ago. I propose neither to argue for nor against public power for any other area, but I do know that it works and will keep working for Nebraska.

We have had our disagreements here, just as relatives in any family have had theirs. Usually family quarrels are conducted indoors, but ours unfortunately got out in the street. I believe, however, that our differences have for the most part been resolved. This I am sure of—our family remains united in basic goals; united in our belief that we are helping this State to a more complete utilization of natural resources.

The Nebraska Public Power System is the largest non-Federal, publicly owned power system in the Midwest and one of the largest in the Nation. We firmly believe in cooperation with our neighboring utilities, whether they are publicly, federally or privately owned. We out here don't believe ideological debates solve anything. We do believe all power agencies can best concentrate and dedicate their efforts to serving their areas and their people. That's why we are anxious to cooperate with the other basin States in plans for coordinated and integrated development of the power resources in the area.

In Nebraska as in other States in this basin area, it is difficult to assess the importance of water. But it is not difficult to assess the importance of what man has done with water in this State.

Through our combination hydroelectric and irrigation districts and through the wise use of the hydroelectric power available from the Missouri Basin dams, Nebraska has truly helped pull the switch on drought.

Senator HRUSKA. One reason for his not being here for these hearings is his attendance in Lincoln before the Interagency Committee, where he also testified and participated in their deliberations 2 days ago.

Senator CARROLL. Mr. Ellis, do you desire to proceed?

STATEMENT OF CLYDE ELLIS, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Mr. ELLIS. Mr. Chairman I would like to make a short general statement and then defer to Charles A. Robinson, to give our basic statement.

I am Clyde T. Ellis, general manager of the National Rural Electric Cooperative Association, which is the service organization of a little over 90 percent of the rural electric systems of the country, who are members on a voluntary basis. We are very much interested, Mr. Chairman, and gentlemen, in the matter before you.

I have listened with some interest for a little while this morning. I should like to say first that we are also interested in the commercial power companies having an adequate supply of power. We purchase about $150 million a year—we pay about that much a year—of power wholesale, the rural electrics. Nearly half of it is purchased from commercial power companies.

In some States we have no other source of supply. About a third of our systems purchase part or all of their supply from the Federal Government. About 16 percent of our power is generated by our own systems.

In much of the Missouri Basin area, rural electrification lagged way behind until there was Federal power development from the river.

The power industry, as you know, is the fastest growing major industry in America, by far, we think. It is doubling its use of power every 7½ to 10 years. The forecasts of the commercial power companies, and they are similar to our own, carry our use of power in the next few years almost beyond imagination. The rural electric segment of the power industry is doubling its use even faster than the whole industry, doubling about every 4½ to 5 years. Where we are going to get the power is a great problem now.

Over one-fouth of our systems are in trouble at this moment for a power supply, not tomorrow but today. We are interested in maximum use being made of the resources of the Missouri Basin, as in the other basins of the country. We do not think that is being done. We think the trend is away from it, actually. We think that some of the policies and all of this trouble did not start within this administration. It is getting worse all the time. But some of these policies are having the effect of giving less power at the moment and in the future, and holding less hope for us in the future.

I think it is encouraging that these two fine committees have undertaken this study. Our electrical engineer, who has been with the association some 7 years, Charles Robinson, has devoted a good deal of study to this problem. He has worked with many of our groups on their power supply in the Missouri Basin area.

I am happy, therefore, to defer to him to make the basic statement for the National Rural Electric Cooperative Association.

Mr. ROBINSON. Thank you, Mr. Chairman.

STATEMENT OF CHARLES A. ROBINSON, STAFF ENGINEER, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

My name is Charles A. Robinson, Jr., I am the staff engineer of the National Rural Electric Cooperative Association.

As we understand it, Mr. Chairman, this subcommittee has been asked by the legislatures of three of the Missouri Basin States to investigate what the people of these States believe to be serious deficiencies in the operation of the main-stem Missouri River multiple-purpose projects. It seems to us that two major problems are posed by the present situation: (1) Whether or not measures can be taken to assure that, in the present period of critical streamflow, the burden of the resulting reduction in benefits attributable to the main-stem projects will be equitably allocated among the various features; (2) whether or not a long-range plan can be adopted to preclude recurrence of the same circumstances during future periods of low streamflow.

The present situation is critical because there is simply insufficient water from which to derive the planned 9 foot free-flowing navigation channel below Gavins Point, while simultaneously reserving water to generate enough electric power to satisfy the financial repayment schedule of the project and meet customer demands.

The rural electric systems in the Missouri Basin States, especially in North Dakota and South Dakota, have an immediate, direct and substantial interest in whatever plan is adopted to govern operation of the Missouri River. Rural electrification in the Dakotas is relatively new, because prior to the time when at least the potential availability of low-cost river power became a reality, the Rural Electrification Administration found it financially infeasible to electrify the thinly settled areas of the Dakotas.

As late as June 30, 1946, after World War II, 10 years after the inception of the rural electrification program and at a time when 52.9 percent of all farms in the United States were electrified, only 10.4 percent of the farms in North Dakota and 13.5 percent of the farms in South Dakota were being served. And even in 1950, when the percentage of farms electrified nationally had climbed to 86.3 percent, North Dakota still lagged at 55.6 percent and South Dakota at 60 percent.

Now in 1957, with REA financed transmission and distribution lines stretching throughout the Dakotas, and with the feasibility of these lines dependent on low cost hydroelectric power, the rural electric systems find that a combination of the unresolved conflicts inherent in the Pick-Sloan plan, unfavorable streamflow conditions, and restrictive Bureau of Reclamation power marketing policies is reducing availability of firm power from the Missouri River substantially below what was anticipated. Loads of the rural electric systems in the Missouri Basin area are increasing 15 percent yearly or doubling every 5 years. The rural systems cannot continue to render reliable service and operate in the black without the assurance of an adequate supply of low-cost power from whatever the source may be.

During 1956 four of the main-stem Missouri River plants were in operation. These are Fort Peck, Garrison, Fort Randall and Gavins Point. Oahe is well along toward completion, and Big Bend is still in the planning stage.

The Bureau of Reclamation anticipated in 1955 that during fiscal 1956, 1.74 billion kilowatt-hours of firm energy would be marketed

from these plants. In view of the fact that only 1.25 billion kilowatt-hours of firm energy was marketed from the same plants during calendar 1956 a period ending 6 months later, it is clear that in 1956 sales of firm energy were below forecast levels by at least 25 percent. Similarly, the Bureau anticipated the sale of approximately 1.41 billion kilowatt-hours of secondary and dump energy from the main-stem plants during fiscal 1956.

Actually, during calendar 1956, a parallel period, 6 months later, only approximately 0.78 billion kilowatt-hours of secondary and dump was sold from the plants. There was, therefore, a very substantial deficiency in the sale of secondary and dump energy during the same period. We estimate that the firm power revenue attributable to the mainstem plants during 1956 fell approximately $2.5 million below anticipated levels while, nonfirm power revenue fell $1.2 billion below anticipated levels.

It is clear then that power production and power revenues at mainstem Missouri River plants are not up to forecast levels. This problem is of grave concern to the cooperatives which depend upon these plants for their wholesale power supply. It is also a poor omen for the irrigation features of the entire Missouri Basin project, and to the United States in view of the tremendous financial burden that must be carried by the power features of the mainstem plants.

Senator ANDERSON. Do you recognize any reason for this deficiency?

Mr. ROBINSON. Yes, sir.

Of course, there is a basic shortage of water, and it is also my understanding that substantial quantities of water have, in the last 2 or 3 years, been run around the generators instead of through them.

Senator ANDERSON. Do you have information on that?

Mr. ROBINSON. Yes, sir, I have.

Senator ANDERSON. The figures you have given would indicate that they did a better job of selling firm energy than they did in selling secondary or dump energy, indicating that probably the water deficiency had something to do with it. Of course, there is nothing that this Congress can do, other than the efforts we have made toward rainmaking, that can improve the water deficiency.

Senator CASE. At that point, I cannot refrain from suggesting that the power companies of California are seeding the clouds successfully there, and we had two witnesses who paid their own way to come from California to tell us about it, at the hearings on S. 86 recently.

Senator ANDERSON. The Senator from South Dakota and I were early in the battle for rainmaking devices. We have had a long series of struggles with it. We hope some day that Congress will see fit to give us a controlled experiment to see if it is not possible to increase the snow pack and water in these areas.

But, pending the achievement of that worthwhile goal, this is largely a failure on the part of whoever controls the weather providentially to provide enough rainfall in the area, is it not, Mr. Robinson?

Mr. ROBINSON. Yes, sir. But according to calculations we made, approximately an amount of water equivalent to 760 million kilowatt-hours was routed around the generators during 1956. That consisted approximately of about 322 million kilowatt-hours of what might have been firm energy and about 446 million kilowatt-hours, that is, the equivalent in water of that many kilowatt-hours, of what might have been secondary and dump energy.

Senator HRUSKA. Would you give me that again, please?

Mr. ROBINSON. That is approximate, sir, based on the best estimates we can make. 322 million kilowatt-hours of firm and approximately 440 million kilowatt-hours of secondary and dump.

You can perhaps divide that second figure equally between secondary and dump as a rough approximation of what happened.

Senator HRUSKA. Do you know of any reason why that water has been run around the generators?

Mr. ROBINSON. I do not know any reason, sir. I would perhaps suspect that some of the dams are not complete yet. There may not be enough power capability in them to handle all of the water that has to be released during the summertime to maintain the navigation channel.

Senator ANDERSON. If we take the 1.25 billion that you take as firm and add to it 0.32, would that be what might have been achieved if they had not run it around the generators?

Mr. ROBINSON. Yes.

Senator ANDERSON. That would be somewhat closer to the 1.74 goal. On the 1.41 goal, would we add 0.43 to the 0.78 billion kilowatts of secondary dump power and get 1.21?

Mr. ROBINSON. Yes, sir. I think that might be an approximate way of doing it.

Senator ANDERSON. So if the water that was run around had actually gone through generating equipment, we would have come somewhat closer to the goals that were originally established?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. You say probably the fact that facilities were not ready to handle this water in some of the dams might have accounted for it.

Mr. ROBINSON. That fact, plus, of course, the fact that during the summer, substantial water was released around the generator when, as I understand it, the maximum releases have to be made to maintain adequate navigation.

Senator HRUSKA. Those releases would result in dump power, would they not, except for the factor of being run around?

Mr. ROBINSON. They would result in secondary and dump power, under present conditions, if the water is not held back to produce power during the winter months.

In 1953, the Bureau of Reclamation was allocating $344 million or 31 percent of the total cost of the main stem plants to power and $769 million or approximately 69 percent of the total cost to flood control and navigation.

That means that in 1953, twice as much was allocated to flood control as was allocated to power. However, since 1953, the Bureau is allocating $706 million or 63 percent of total cost to power and $251 million or 22 percent of total cost to flood control and navigation. This switch represents a more than 100 percent increase in that portion of mainstem project cost allocated to power. It is equivalent to adding 1.75 mills to the apparent cost of every kilowatt hour that will be produced from these plants during the next 50 years.

Senator ANDERSON. I want to follow your figures.

What has happened to irrigation?

Mr. ROBINSON. I believe I have those calculations here in this voluminous study. Irrigation, of course, is the other major factor.

Senator ANDERSON. Take the first figure, the 1953 figure, where you say 31 percent went to power and $769 million or 69 percent to flood control and navigation. Was there nothing to irrigation?

Mr. ROBINSON. I do not believe so, because we are considering here only the mainstem plants. I would have to check that.

Senator ANDERSON. You can do it later. I do not wish to delay your testimony.

It has some relevancy to the matter that Senator Case and I, and Senator Carroll, were on a moment ago, on which we had a $2 billion figure assessed against irrigation, eventually, and $1,100 million to power, with power repaying some $3 billion worth of a total cost of the projects. I wondered if these figures were related to that in any way.

Senator CASE. These are not comparable.

Senator ANDERSON. Not comparable, but I wondered if they were related in any way.

Mr. ROBINSON. In 1953, according to the report of the Missouri Basin Survey Commission, the Bureau of Reclamation had allocated nothing of the main stem dams to irrigation.

Senator CASE. What report is that?

Mr. ROBINSON. This is the report of the Missouri Basin Survey Commission.

Senator ANDERSON. I am trying to find out what the term allocating has to do with it. What does it mean in the first sentence, that the Bureau was allocating $344 million or 31 percent of the total cost of the mainstem plants to power?

The testimony before the Senate committee given by Mr. Hanlon sets out these figures of the total cost of the project and how it is allocated.

Mr. ROBINSON. Yes, sir. I think his figures referred to present-day allocations which are entirely different and completely averse from what they were in 1953. There has been a very drastic change.

Senator CASE. If you add the 2 figures together, 706 and 251, you get a total of 957, which does not cover the cost of the projects.

Mr. ROBINSON. There was a little allocated in 1953 to recreation, but at that time the total estimated cost of the project was only $1.1 billion. There was nothing allocated to irrigation at the time by the Bureau of Reclamation, according to the Missouri Basin Commission's report.

Senator CASE. Do you know whether those figures are supposed to cover the completed project, all of the projects, or whether they are partial?

Mr. ROBINSON. No, sir. These figures merely refer to the mainstem dams.

Senator CASE. Is there anyone here who can set us straight on these figures, what they mean?

Mr. ROBINSON. Yes, sir, I can, as soon as we follow a little further. I believe they will be clarified.

Senator ANDERSON. Has there been any change in the allocation of cost of the entire project since it was presented to the Congress and approved by the Congress?

STATEMENT OF JAMES C. BRADLEY, GENERAL ENGINEER, OFFICE OF ASSISTANT SECRETARY OF THE INTERIOR FOR WATER AND POWER

Mr. BRADLEY. Senator, there have been a number of changes.

Senator ANDERSON. In what direction have those changes moved and what magnitude are they?

Mr. BRADLEY. They are of great magnitude, Senator.

The original document, Senate Document 191, at the time of authorization described a project having a total cost, and, if I may, I will use round figures, in order not to lose the trend of thought, the total combined Corps and Reclamation project cost of $1,200 million.

Senator ANDERSON. The total?

Mr. BRADLEY. Yes, $1,257 million.

Senator ANDERSON. For the whole thing?

Mr. BRADLEY. For the combined whole project; yes, sir, in 1944.

Senator CASE. Was that the main stem and tributaries?

Mr. BRADLEY. No. Senator Case, Mr. Robinson was referring to the main-stem dams. I do not have a breakdown of that particular collection of dams. We are talking about the total project which is used as a basis for the rates.

Senator CASE. Dams on tributaries and irrigation?

Mr. BRADLEY. Yes.

Senator ANDERSON. $1 billion?

Mr. BRADLEY. $1,257 million.

Senator ANDERSON. All right.

Mr. BRADLEY. Since that time, Senator Anderson, for a number of reasons, primarily the general increase in cost index to a level almost 300 percent of the 1940 level, we arrive at the April 1955 estimate, which was submitted to the committee, at their request, and we have a total comparable to the 1.2 billion that we mentioned a minute ago of 5.3 billion.

Senator, you were asking for allocations. Going back to the 1.2 billion, we have an allocation in the original document only as between reimbursable and nonreimbursable. It just is not there otherwise. We have for flood control and navigation combined, in the original document that we refer to, Senate Document 191, $516 million. For flood control and navigation combined that is the amount.

Senator HRUSKA. Do you know what the percentage is?

Mr. BRADLEY. Senator, it is not there. At least, I cannot find it. The balance, Mr. Chairman, would be $741 million which would be spread among, principally, irrigation and power. But there is no breakdown.

Senator ANDERSON. How could you tell how much was interest-bearing and how much was not, if there is no breakdown between irrigation and power? One bears interest and the other does not.

Mr. BRADLEY. Yes. Senator Anderson, the breakdown may be buried somewhere in the files, but I searched and I could not find it in Senate Document 191. There is a statement that in addition to the repayment of capital costs, which exclude the interest charge, power revenues would pay interest on the power investment.

Senator ANDERSON. Yes, but if we did not know what that was——

Mr. BRADLEY. Someone must have, of course, but it is just not in the document that I dug into.

Senator ANDERSON. How long ago was this?

Mr. BRADLEY. 1944.

Senator ANDERSON. In 13 years we have completely lost all record of it? Nowhere is there any record?

Mr. BRADLEY. I certainly would not say that, Senator Anderson. I just have not had a chance to dig into it.

Senator ANDERSON. I am giving you credit for due diligence.

Senator CASE. Senate Document 191, was that the merger of the two?

Mr. BRADLEY. No, Senator, that was the Interior part.

Senator CASE. That would not cover all of the cost, because the Sloan plan did not embrace some of the reservoirs that were in the Pick plan.

Mr. BRADLEY. That is right.

Senator ANDERSON. Did the Senate document not pick up the Sloan part? The House document was Pick only; was it not?

Mr. BRADLEY. That House Document was the Army plan, but Senate Document 191 included both Interior and certain Army proposals.

Senator ANDERSON. And the Senate document was supposed to have added the Sloan plan?

Mr. BRADLEY. Yes. There was a further document, I think it was Senate Document 247, 78th Congress, the coordinating document which made modifications to eliminate differences in the two plans.

Senator ANDERSON. What did it show?

Mr. BRADLEY. I understand it did not show a cost allocation.

Senator CASE. Mr. Chairman, my understanding is that the Sloan plan did not pick up the Pick plan. The Sloan report was an independent Bureau of Reclamation report. It featured the high Oahe Dam. the Pick plan had a low dam at Oahe and another dam west of Mobridge, 6 million acre-feet dams in place of the 20 million acre storage capacity of the Oahe Dam. The Pick plan also provided for Randall and Gavins Point. I think that the Sloan plan suggested perhaps a regulating dam at Big Bend. You cannot go on either of those reports alone. You need Senate Document 247, which put the two plans together. I have that here in my hands. But it deals with the storage capacity of all of the reservoirs. I do not find in that document any merger or reconciliation of the costs.

Senator ANDERSON. Some time ago there was a shotgun wedding.

Senator CASE. This is it.

Senator ANDERSON. That was the shotgun wedding.

Did the shotgun wedding substantially raise the total figures at that time or have they been raised since?

Mr. BRADLEY. I am not sure.

Senator ANDERSON. Very well.

Senator CASE. This so-called merger report does not carry dollar figures at all, but deals with the capacities of the reservoirs.

Senator ANDERSON. At a later time you said it got up to $5,375 million. Are those figures Mr. Hanlon brought in the other day?

Mr. BRADLEY. I can tell at a glance. 2.2, 1.1, 3.4, 1.8, 1.8, 5.3. Yes.

Senator ANDERSON. Those are correct?

Mr. BRADLEY. Yes, Mr. Chairman.

Senator ANDERSON. Do you know anything about how the Bureau of Reclamation in 1953 was allocating $344 million to main-stem plants? Can you tell me what that figure means?

Mr. BRADLEY. Mr. Chairman, I shall try to be responsive, but if you will permit me, I have to qualify it by saying I do not have those specific main-stem allocation data before me. But I can tell you, sir, in general, how they arrived at it.

The allocation is simply a division of cost among the purposes being reserved. At that time, the Bureau of Reclamation was using an allocation based on the initial assignment to flood control and navigation of an amount equal to the capitalized benefits, or the alternative cost of producing flood control and navigation by some other means. Then, the remaining costs were allocated to the other project purposes. Since that time, and that is pretty technical—I can see your look of disbelief——

Senator ANDERSON. It is a little hard to follow.

Mr. BRADLEY (continuing). Since that time, Senator Anderson, there has been a change in a number of factors, physical, economic, and policy. The physical and economic factors are things like cost, the economic benefits, the size of the installation, and other things. The principal policy change in the basis of allocating was to use the main-stem allocation of the Corps of Engineers rather than to make our own.

Senator ANDERSON. I think you would admit, probably, that it is hard to translate the $516 million that was flood control and navigation in the beginning and $741 million that was irrigation and power into the figures that have been presented here this morning.

Mr. BRADLEY. Yes, sir.

Senator ANDERSON. Do they bear any relationship to the figures Mr. Hanlon put in?

Mr. BRADLEY. It is equally difficult.

Senator ANDERSON. How would a committee, without a slide rule, begin to find out what figures it should use, if any?

Mr. BRADLEY. I anticipated that I, for one, would be asked, Senator Anderson.

Senator ANDERSON. I am happy now to ask you. How do you correlate these figures so that we come out with something we can all put our teeth into?

Mr. BRADLEY. The only way I could do it would be, as a special assignment, to take the various units and relate those between then and now as to total cost, then take the various services that are expected to be delivered by the project in terms of power, kilowatt-hours, capacity, benefits, acreage as far as irrigation is concerned, tonnage as far as navigation is concerned, property protected as far as flood control is concerned, and try to give an appraisal by each function. For example, power may have more value today because of increased capacity.

Senator ANDERSON. You heard the questions that Senator Case and I, and Senator Kerr and others, tried to get into the other day. I am not leaving Senator Carroll out of this, but I do not remember

whether he got into the same questions at that time or not. He reserves his right to come in later.

But here is a statement made by a witness, that the Bureau is now allocating $706 million to main-stem dams, and that that represents a 100 percent increase in the cost of the main-stem project allocated to power which has 1.75 mills to the apparent cost of every kilowatt-hour that will be produced in these plants during the next 50 years.

I want to ask how do you get those figures out of the official reports of the Government and not out of the report of some association?

Mr. ELLIS. Mr. Chairman, I think Mr. Robinson can tell you that—where he gets the figures.

Senator ANDERSON. That would be fine. I would like to get it from the representatives of the Government. But if the Government does not know, then I want to get it from a private source. I am disappointed in the fact that the Government would not know as much about it as a private source. I think probably it would. I will let Mr. Bradley rest for a moment, and try to get it this way, and then let Mr. Bradley give us his explanation and then the Army corps give us theirs. I think eventually we ought to get everybody reading out of the same book.

Senator HRUSKA. And then decide which set of facts we might adopt as those upon which we might proceed.

Senator CASE. There is one significant sentence in the report of the Missouri Basin Survey Commission appointed by President Truman, when it gave a comparison of allocations listed at page 92. It gave the figures then it wound up the paragraph this way:

> These differences result from different methods of allocation and the agencies have not been able to reconcile their variances.

Senator ANDERSON. I assumed there were different methods of allocation, but at some point it would seem to me that the Congress ought to agree upon what it would regard as the standard method of allocation for the standard allocations that should be put to it. Otherwise, we are going to be in endless argument among ourselves.

I hope, Mr. Bradley, you did not take anything I said as an attempt to be critical or hazy in a criticism of you. I am not meaning it that way at all. I am anxious that we all finally read out of the same book on a project that is going to run $5,375 million if it is all completed.

Senator CASE. This is part of a larger problem; it is not merely the Missouri Basin. The same problem exists when you have one method of evaluating benefits established by the Corps of Engineers in determining the feasibility of projects, and another basis used by the Bureau of Reclamation. The Committee on Public Works ran into that a year or so ago when we were working on the Southwest Power Administration problem. We had some testimony at that time that the Bureau of the Budget endeavored to achieve a reconciliation between methods of determining costs. We were confronted by the statement that there had not been a reconciliation. I think that the Congress, through joint efforts of both the Public Works and Interior Committees, probably should establish some uniform method for the agencies to follow. It is impossible for the two agencies to come to a reconciliation on their own.

Senator ANDERSON. I commend the statement of the Senator from South Dakota. I agree with that.

I do not agree with what the Bureau of the Budget put out, this A–47. I just did not like that, because it took out of consideration several things that we have to have if we are going to have irrigation in the West. I am just now ready to ring down the curtain on irrigation in the West.

Mr. Robinson, why do you not go ahead with your story on this, and then come back to the testimony, if you do not mind?

TESTIMONY OF CHARLES A. ROBINSON, JR., STAFF ENGINEER, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION—Resumed

Mr. ROBINSON. Let me say first, Mr. Chairman, that in obtaining the 1953 figures, the figures with respect to the main-stem dams that were allocated to the various purposes in 1953, I just used figures that were contained in the report of the Missouri Basin Survey Commission which was comprised, among other people, of Senator Murray, Senator Young, Congressman Aspinall, Congressman Hope, Congressman Trimble, and a number of other people.

These figures were furnished to the Missouri Basin Survey Commission, according to the footnote on page 92 of its report, by the Bureau of Reclamation. All I did was add up the various allocations that were reported by the Bureau of Reclamation for the main-stem dams in 1953 and that is the allocation, as far as I am concerned, that the Bureau of Reclamation was advocating at that time.

The reason I emphasize these main-stem dams is that about 65 or 70 percent of the ability of the entire Missouri Basin project to pay out depends on the sale of power from these dams. They are the big power producers.

Senator ANDERSON. In order that the record may be a little clearer, because we cannot come back and see these things when we look at the record, you are referring to a table that starts with Fort Peck and shows for power the Corps of Engineers allocating $82 million, roughly, and then you have the Bureau of Reclamation figure of $35 million?

Mr. ROBINSON. That is correct.

Senator ANDERSON. Do you total those two in order to find out the charge to power?

Mr. ROBINSON. No, sir. My statement was to the effect that in 1953 the Bureau of Reclamation, which was responsible for marketing the power, was allocating, in this case to Port Peck, $35,268,000. To get the total allocation of the main-stem dams——

Senator ANDERSON. The Corps of Engineers was allocating $82 million?

Mr. ROBINSON. That is correct, sir.

Senator ANDERSON. Which figure did you consider?

Mr. ROBINSON. I used the Bureau of Reclamation's on the ground that they are responsible for the marketing of power.

Senator ANDERSON. What did you do with the Corps of Engineers figure?

Mr. ROBINSON. I did not use that.

Senator ANDERSON. You were not going to be like the Pharisees. You were not just going to walk by on the other side of the street, were you?

Mr. ROBINSON. No, sir; but at that time, there was a basic split in policy betwen the Corps of Engineers and the Bureau of Reclamation as to which method of cost allocation would be used. Since the Bureau of Reclamation is responsible for marketing the power, and presumably know what they can sell the power for, and how much revenue is required to repay the irrigation costs, my conclusion was that the Bureau of Reclamation was the one whose allocation should be used.

Senator ANDERSON. If you are here this afternoon, you will find that Senator Case and I may not agree with the Bureau of Reclamatoin, that they have to set a rate that would repay all the irrigation costs.

But in any event, all I am trying to find out is, and again, I assure you I am not trying to be sarcastic with you in my questions at all, and I tried to make Mr. Bradley believe that, too.

Mr. ROBINSON. Senator, I welcome your questions.

Senator ANDERSON. You have testified before me before and you know I am not trying to be critical. I am trying to find out what we can use. Therefore, since the Bureau of Reclamation is responsible for the marketing of power, you feel that their figure of $35 million should be used as against the Corps of Engineers' figure of $82 million?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. I am trying to get this into the record, that is all. When you came to the Garrison Dam, you felt that the Bureau of Reclamation's figures of $51 million should be used in preference to the Corps of Engineers' figure of $161 million?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. And on Oahe Dam you felt that the Bureau of Reclamation's figure of $114 million should be used in preference to the Corps of Engineers' figure of $183 million?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. And similarly with Big Bend, you used $49 million of the Bureau rather than $65 million of the corps?

Mr. ROBINSON. That is correct, sir.

Senator ANDERSON. And on Fort Randall, you used $61 million as against $115 million?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. And on Gavins Point, you used $31 million against $50 million. You got a total for the Brueau of Reclamation, which is printed at the bottom of that page, of $344 million as against a corps figure of $658 million, rounding it out. That $344 million is the figure that you have in your testimony, too, is it not?

Mr. ROBINSON. That is correct.

Senator ANDERSON. If you had used the Corps of Engineers' figure, you would have had in your testimony $658 million?

Mr. ROBINSON. That is correct.

Senator ANDERSON. But you did not use that. You used the figure of the agency that had to market the power.

Mr. ROBINSON. Yes, sir; that is correct.

Senator ANDERSON. Now, will you tell us where you get the figure of $706 million?

Mr. ROBINSON. The figure of $706 million was obtained from a publication of the Department of the Interior, the Bureau of Reclama-

tion, entitled, "Economic Analysis, Missouri River Basin Project, Revised April 1955."

I might add that the words, "For administrative use only," are printed on the bottom of this document. I received it from an official of the Department of the Interior.

Senator ANDERSON. We have one here marked, "For administrative use only." I think Senator Carroll and I would rule that this is an administrative use when we are trying to find it, so go ahead and testify from it.

Mr. ROBINSON. I am using table 5.

Senator ANDERSON. We have this document here, Senators.

This is the allocation of cost, Missouri River Basin, in thousands of dollars.

Mr. ROBINSON. If you will look at the list of projects down the left-hand column of the page, Fort Peck, Fort Randall, Garrison, Gavins Point, a little further Oahe, and still further down is Big Bend; those are the main stems.

This is table 5, sheet 7 of 7.

Senator ANDERSON. Proceed.

Mr. ROBINSON. You will see a list of the main-stem dams down the left-hand side of the page.

Senator ANDERSON. Fort Peck is $158 million?

Mr. ROBINSON. Yes; that is the total cost. Fort Randall.

Senator ANDERSON. $195 million?

Mr. ROBINSON. Yes. Gavins Point.

Senator ANDERSON. $53 million?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. What happened to Garrison?

Mr. ROBINSON. That is in there, also, sir.

Senator ANDERSON. $295 million?

Mr. ROBINSON. Yes, sir. Further down is Oahe.

Senator ANDERSON. $351 million.

Mr. ROBINSON. And still further down is Big Bend.

Senator ANDERSON. $71,500,000.

Mr. ROBINSON. That is correct. I added those up and came out with a figure of $1,124,600,000, which I think is approximately right.

Senator ANDERSON. You took a portion of that?

Mr. ROBINSON. No, sir; I took the total, but I excluded such projects as Harlan County, Kanopolis, and other works, and so forth. I took only the main-stem projects.

Senator ANDERSON. 158, 195, 295, 53, and 351.

Mr. ROBINSON. 352, I think would be closer.

Senator ANDERSON. Yes; that is what it would round out to. That is $1,353, million, I hope?

Mr. ROBINSON. I came out with $1,125 million approximately.

Senator ANDERSON. I do not care to expose whose arithmetic is wrong because it probably would be me. I did not put in Big Bend. That makes it $1,124 million or $1,125 million?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. Either one?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. Very well; we are together.

Mr. ROBINSON. I repeated the process for the column marked "Power," which is the third column of figures. I came out with a figure of $705,834,000.

Senator ANDERSON. That is where your $706 million comes from?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. Are these the same dams that were used in the development of a figure of $344 million?

Mr. ROBINSON. They are substantially the same dams. The construction cost has increased, certainly.

Senator ANDERSON. No; I mean it is Fort Peck——

Mr. ROBINSON. Yes, sir; the same names.

Senator ANDERSON. Fort Randall, Garrison, Big Bend, and Gavins Point?

Mr. ROBINSON. Yes, sir.

Senator CASE. Big Bend has not yet been started. That figure of 71 may be changed possibly.

Senator ANDERSON. Yes, Senator. Thank you, sir; that is useful to us.

Mr. ROBINSON. Shall I proceed?

Senator ANDERSON. Mr. Bradley, have you any comment on that at this time?

Mr. BRADLEY. No, sir.

Senator ANDERSON. These are the same dams that added up, in this Missouri River Survey Commission, to $334 million by the Bureau of Reclamation. Now, we have the figure by the Bureau of Reclamation that totals these same dams up to $706 million.

Mr. BRADLEY. Yes. Nominally those are the same projects. There are physical differences that we would have to get into detail on.

Senator CASE. Are these the allocations on power alone?

Senator ANDERSON. The first figures that we put into the record. And I think we better say it for the sake of the record: The first figures are overall figures that ran into $1,125,000, but when they were broken down to power only, the figures became $85 million for Fort Peck, $40 million for Fort Randall, $164 million for Garrison,, $40 million for Gavins Point, $208 million for Oahe, and $71 million for Big Bend.

Mr. ROBINSON. That is correct, sir.

Senator CASE. Those are power-only figures?

Senator ANDERSON. Yes.

Senator CASE. The power-only figures, under the latest estimate exceed the original total cost estimates by $12 million.

The total figure there was $1,112,000. So the power alone exceeds the total.

Senator ANDERSON. It was $706 million when we had the power only.

Senator CASE. I am afraid I confused you.

Senator ANDERSON. Let me see if I have it and then you correct my figure if I am wrong. The total figures of the dams in the Missouri River Survey Commission document was $1,112 million. The total cost of these dams was $1,125 million but the power-only figure is $706 million.

Mr. ROBINSON. That is essentially correct, yes.

Senator CASE. Then the total overall cost is up only $12 million?

Senator ANDERSON. Of just these dams. There are many other figures here, too.

Senator CASE. The total is up only $12 million.

Senator ANDERSON. Do you agree with that, that the total is up only $12 million?

Senator CASE. That is over the 1953 figures.

Mr. BRADLEY. I think you are ahead of me, Senator Case. I do not object to that. I just have not had a chance to follow the mathematics there. It sounds right.

Senator CASE. I do not think that there is any basis for a difference on that.

Senator ANDERSON. I think that is exactly right. I think it points up exactly what was said by the witness here, that there has been a switch from flood control and navigation to power.

Now, we are with you, are we not?

Mr. ROBINSON. Yes, sir.

Senator ANDERSON. Good. Well, some of us are together. Let us put it that way. Go ahead.

Mr. ROBINSON. Thank you, Senator,

The Corps of Engineers, responsible for the construction of the main-stem projects has, since 1950, revised its cost allocations for these projects no less than six times.

Each revision represents a substantial increase in the allocations to power. Since 1950, the corps had increased its power allocation from $493 million to $728 million and decreased its navigation allocation from $114 million to $94 million.

Senator ANDERSON. Does the corps agree with that figure?

STATEMENTS OF MAJ. GEN. GERALD GALLOWAY, IN CHARGE OF THE MISSOURI RIVER DIVISION FOR THE CORPS OF ENGINEERS, AND BRIG. GEN. JOHN L. PERSONS, ASSISTANT TO THE CHIEF OF ENGINEERS

General GALLOWAY. We have changed our allocations.

Senator ANDERSON. I will not hold you to the 6 times, but do you agree that since 1950 you have increased the power allocations from $493 million?

General GALLOWAY. I can tell you in a second. It is $728 million that we have now; yes, sir. In 1950 it was $492 million.

Senator ANDERSON. He has rounded the figure.

Senator CASE. Similarly, did you decrease the navigation allocation, General Galloway?

Similarly, have you decreased the navigation allocation as he suggests from $114 million to $94 million?

General GALLOWAY. Yes, sir, we have.

Senator ANDERSON. Fine. Thank you.

Go ahead.

Senator CASE. I want to ask why at some appropriate time.

Senator ANDERSON. This would be an excellent time, I would think.

Senator CASE. I think that is a rather staggering thing, to change the power allocation from $493 million to $728 million. There certainly ought to be a basis upon which it was done.

Senator CARROLL. Do you want to hear it at this time, to interrupt this testimony?

Senator CASE. General Galloway is leaving, I understand. Yesterday morning, I brought to the attention of Senator Murray that certain statements had been made, both of the Bureau of Reclamation and the Corps of Engineers. At one point, the suggestion had been made that there was some doublecrossing in this, and so forth.

I certainly think that both the engineers and the corps should make a statement in response to such allegations and they should give us these facts. We are getting a repetition of charges here.

We ought to have the testimony of both bureaus on it.

Senator CARROLL. I might say to the committee that it is our intention—and I do not know who formulated this intention—after the testimony of Mr. Robinson and Mr. Wise, and I think we set this previously, to hold a hearing with the Interior Department officials on the question of assessing costs of irrigation.

That was to come up at 2 o'clock this afternoon.

I have been handed this notation that the hearings will then be in recess until the agencies are to be heard. I assume that the Bureau of Reclamation and the Corps of Engineers will be called upon for their explanation, answers, and suggestions.

If you want to suspend the testimony of this witness and call in the Corps of Engineers at this point, I see no reason why it cannot be done.

Senator CASE. Major General Galloway is the division engineer at Omaha for the Missouri River Division, which has the responsibility for actually operating the reservoirs on the mainstem of the Missouri River.

He is the one most directly in charge of this. While he is here, it seems to me that he might give us some information that might be helpful for the balance of the hearing.

Senator ANDERSON. Why do you not give us the explanation now, General, as to why you changed this from $493 million to $728 million?

General GALLOWAY. One of the things, Senator, is that the power facilities have been tremendously increased. For example, Fort Peck formery had 1 powerhouse and it now has 2 powerhouses.

We have increased the number of generating units at Garrison. We have increased the original number at Oahe from 2 to 7 generating units. All of those carry a tremendous increase in construction costs.

Senator ANDERSON. That will also increase the revenues, will it not, very materially?

General GALLOWAY. Yes, sir.

Senator ANDERSON. That would not add to the irrigation load, but lighten it, would it not?

General GALLOWAY. In our allocation of cost, sir, we have a method which has been agreed to, as I understand it, by the interagency group here in Washington, where we use what is known as a separable cost-remaining benefit method of allocating costs.

For instance, in a structure, a dam, it is easy to pick out certain specific costs and allocate those to a particular purpose served such as power. The generator which is used for generating power, you can

allocate that to power. And certain other things you can allocate to flood control, to fish and wildlife, and to navigation.

Then, when all those specific costs are added up, you have a difference between that amount and the total cost of the project. So to arrive at a fair and what has been considered an equitable method of allotting costs, they have hit upon what we call a separable cost-remaining benefit proposition.

They take the cost of the entire project as an entity. Then, for each purpose, you determine how much it would cost to build the project to serve that particular purpose. If you were to build a project for power alone, how much would it cost for power? How much would it cost for flood control, if there were nothing else in it?

Then, subtracting——

Senator ANDERSON. Maybe I could help you this way: By pointing out that the original cost was $1,112 million and now the cost is $1,125 million, so you could not have added too awfully much to Oahe. You only went up $12 million, but the assessment against power went up $300 million.

General GALLOWAY. With Oahe, sir, if I may take the 1950 costs and the other costs——

Senator ANDERSON. The 1944 costs were handy. Your total cost for power at Fort Peck, Garrison, Oahe, Fort Randall, and Gavins Point was $675 million in the original computation that is listed in this report of 1953.

I do not know what it was in 1950, but the total cost came out at $493 million in 1950.

Now, you have it up to $728 million. How much of that is due to the installation of extra generators and how much is due to a new way of figuring?

General GALLOWAY. $209 million, sir, is due to the increased cost of generating and power features, specific cost.

Senator CASE. In adding those generators, could you tell us how much you have increased the power potential? Under your first figure, what was the total power capacity and what is the total power capacity under the last figure?

General GALLOWAY. No, sir, I would have to compute those figures to answer those specific questions. I do not have the figures.

General PERSONS. The 2-unit initial installation at Oahe would have provided 170,000 kilowatts of installed capacity. The 7 units will provide 595,000 kilowatts installed capacity.

Senator CASE. The original installation contemplated 480, did it not, at Oahe? This 470, is that a figure to the first dollar cost?

General PERSONS. 425, sir.

Senator ANDERSON. What is 170?

General PERSONS. We were initially installing two 85,000 kilowatts for the initial installation.

Senator ANDERSON. But you contemplated the other?

General PERSONS. We contemplated the other, yes, sir.

Senator ANDERSON. That was in your cost, was it not?

General PERSONS. Yes, sir, but the difference between the 425 and 595 is the net increase.

Senator CASE. So the increase is 170,000?

General PERSONS. Yes, sir.

Senator ANDERSON. The figure you gave was the increase rather than the original, was it not?

General PERSONS. Yes, sir, that is correct.

Senator ANDERSON. I believe you will want to go back and correct your testimony. You gave us the one figure.

General PERSONS. Yes, sir.

Senator CASE. Then, that shift in power resulted in a shift in cost, in your cost allocation?

General GALLOWAY. Yes, sir. I would like to say that the total cost that Senator Anderson was referring to, of $492 million in 1950 consisted of specific costs of $274,974,000 and a share of joint costs of $217,775,000.

As of today, January 1957, there is a slight variation, practically the same as Mr. Robinson's costs. We have a total to power of $728,400,000 which consists of $483,393,000 of specific costs which are for power equipment and buildings to house power equipment, specifically for power purposes, and a share of joint costs of $245,007,000.

Senator ANDERSON. So the specific charge against power, exclusive of the joint costs, has gone up $209 million?

General GALLOWAY. $209 million, sir, in that time.

Senator ANDERSON. Has that been based on increased costs of generators?

General GALLOWAY. Partially, sir, and it also includes the increased number of generators. At Oahe, there, we were basing our costs on the installation of 5 units, which would have amounted to $71 million for power facilities at Oahe.

Today, we are basing it on the 7 units or $179 million for power facilities.

Senator ANDERSON. Now, go back to the figures that came in here just a moment ago. They seem to be sort of perplexing. Did you expect to get 595,000 kilowatts out of $71 million worth of machinery?

General GALLOWAY. No, sir.

Senator ANDERSON. That is the figure we had a minute ago. What did you expect to get out of that? What did you expect that 425,000 to generate? You increased it only 170,000 in output. What did you expect that 425,000 kilowatts capacity to cost?

General GALLOWAY. I do not have the figure here, sir. I will get it.

Senator ANDERSON. You had the figure a moment ago.

General PERSONS. Mr. Chairman, we have been talking about two different figures. When we say we reported to Congress that we were planning on 2 units at 85,000 kilowatts each, that was our testimony in support of appropriations for that initial installation.

Senator ANDERSON. But that was never your plan for the dam, was it?

General PERSONS. That is entirely separate from our cost allocation. The cost allocation was based on the 425,000 kilowatts. When we said we had reported to Congress that we were going to do 2 units at 170,000, that was the appropriations testimony for the initial installation and not the cost allocation based upon the then proposed installation, sir.

Senator ANDERSON. Would it be simpler if we base it on what you really plan to put in in generators, for a capacity of 425,000 kilowatts?

General PERSONS. Yes, sir.

Senator ANDERSON. What was that going to cost?

General GALLOWAY. The specific cost for our power——

Senator ANDERSON. What I am trying to find out, General, is why did you jump the power from 493 million to 728 million dollars. To explain that, you said "We started with 2 generators and end up with 7." But that does not explain it. You did not start with two. That is what you asked the Congress for. You intended to have 425,000 kilowatts not 170,000 kilowatts.

General PERSONS. The specific costs that we used for the allocation of 1950 were $71,300,000, and the specific costs in 1957 were $179,760,000 which reflects both the added generators and increase in price level in that period.

Senator CASE. Are you talking about Oahe alone?

General PERSONS. About Oahe alone.

Senator CASE. The figures that the witness was talking about were the figures for the main-stem reservoirs.

Senator ANDERSON. $493 million. I do not want to get it confused, but do I understand that in that sum you only had $80 million for Oahe?

General GALLOWAY. Of the $493 million, sir, we had a total of $133,355,000 for Oahe, of which $71 million was specific cost for power installation, a cost that we could directly attribute to power, and of which $62 million was a share of joint cost.

Senator CASE. To resolve the issue, Mr. Chairman, it seems to me that instead of just trying to talk about one reservoir, if we were using totals, if they have them, it would be simpler. The witness was saying that there had been an increase in power allocation from $493 million up to $728 million.

Is that difference of approximately $235 million, or whatever it is, all due to the increased number of generators?

General GALLOWAY. No, sir, it is not. About $28 million of that is due to an increase in the share of joint costs during that time.

Senator CASE. But the balance of it is directly due to the increased installation of generation?

General GALLOWAY. Yes, sir. Roughly $209 million is due to increase in cost of installing power equipment.

Senator CASE. Now, that $209 million of increased cost—how much have you increased the power potential of the main-stem reservoir as a whole?

General GALLOWAY. Sir, I cannot give you the figures to compare with those two dates. I would have to get it so I can reconcile.

General PERSONS. From the 1950 cost allocation to the 1957, the total installed capacity for the system rose from 1,450,000 kilowatts to 1,797,000 kilowatts, an increase of 347,000 kilowatts.

Senator CASE. So for the $209 million we get an increased installed capacity of 347,000 kilowatts?

General PERSONS. Yes, sir. But, of course, part of that $209 million reflects the price change of that period.

Senator CASE. On all of the generators?

General PERSONS. Yes, sir.

Senator CASE. And not merely on the new generators?

General PERSONS. That is correct.

Senator CARROLL. Are you in disagreement with the Bureau of of Reclamation on the cost allocation of power?

General PERSONS. No, sir. They have accepted our method of cost allocation.

Senator ANDERSON. I was going to say, you are not in disagreement, because they accepted your figure.

General PERSONS. There was agreement in 1954 on the method of cost allocation.

Senator ANDERSON. Is that not one of the gripes, if I can put it in that language, that the Bureau of Reclamation took your figures instead of standing by its own, and that has changed the whole power situation as far as costs are concerned? You probably have heard some such discussion as that.

General PERSONS. Yes, sir, I have heard that.

Senator ANDERSON. I do not want to commit you to it, but you could not possibly have been out there and did not hear that that was one of the gripes.

Senator CASE. I think the power users would have no objection to your increasing the power potential of the reservoirs and having that cost added to the allocation to power. But if there is a shift in the method of apportioning the power, that is something else.

General PERSONS. As General Galloway pointed out, the share of joint costs has risen from 1950 to 1957 only from $217,775,000 to $245 million or, roughly, $28 million.

Senator CASE. Does that reflect a share of the increased cost of construction?

General PERSONS. That is correct, sir.

Senator ANDERSON. Only?

General PERSONS. I don't know whether it is only that or not, sir.

Senator ANDERSON. Let us look at the report, page 92, which referred to this. The figure of the Bureau of Reclamation for power was $344 million, as this witness has pointed out, and your figure was $657 million. You ended up by the Bureau taking your $657 million, which has now increased to $728 million, is that not the fact?

General PERSONS. Yes, sir.

Senator CASE. Mr. Chairman, the other side of the shield is that Mr. Robinson pointed out that the navigation allocation had decreased from $114 million to $94 million. Does that decrease in the navigation allocation reflect a decrease in the water that would be applied to navigation in order to supply the water for the increased number of generators?

General PERSONS. No, sir. I believe that stems largely from the fact that we have increased the power benefiits by producing more power, and, therefore, the share of the overall project cost, which is partially based on the share of benefits, has increased for power and proportionately decreased for navigation, because the navigational benefits were not increased whereas the power benefits were increased by the addition of 347,000 kilowatts.

Senator CASE. Under your plan of operation, is it possible for you to increase the power production without reducing the water allocated for navigation?

General PERSONS. Well, sir, in the past few years we have not had sufficient water to provide a full navigation season. In 1955, for exam-

ple, we only provided a 6½-month season. In 1954 and 1956 it was 7 months, and in 1957 it will be no longer than 6½ months, because we have already curtailed it by 6 weeks at the start. That is out of the normal 8-month season. That 6½ months in 1955 and 1957 is approximately the same navigation period which we would have had had Fort Peck remained in operation without any of the other main-stem dams. As you know, Fort Peck was authorized as a navigation project.

Senator CASE. Does the drop in the allocation by $20 million for navigation reflect the shortened season?

General PERSONS. I will have to ask General Galloway to state that, sir.

General GALLOWAY. The benefits? No, sir. We are not putting out these costs on the present day. We are putting out the allocation of cost based on two things, physical cost and benefits.

Senator CASE. And a completed system?

General GALLOWAY. That is right, a completed system. For instance, we have, in our cost allocation studies, certain benefits for irrigation, and much of the irrigation does not exist at the present time.

Senator ANDERSON. Did you reduce the irrigation benefits any when you reduced the navigation benefits?

General GALLOWAY. The irrigation benefits, sir, using comparable cost figures where you had the 657, on the irrigation benefits I had at that time the cost was 173,300,000 for irrigation and today $162,-900,000.

There has been a reduction there of approximately 10 to 11 billion dollars.

Senator CASE. On what basis?

General GALLOWAY. Well, sir, it is based on this separable cost remaining benefit, which is a complicated proposition in arriving at the joint cost that cannot be directly attributable to a specific feature, and what part of that should be allocated to the purposes of the project.

Senator CASE. It would appear, then, without changing in any degree the benefits for navigation the allocation of costs to navigation is being reduced?

General GALLOWAY. That is right, sir. If the benefits for other portions of the purpose go up, then there will be a corresponding reduction. Allocation of joint costs vary in proportion to the benefits to be derived from the project.

Senator CASE. Mr. Chairman, I think we have some information from this. I do think that when the Corps of Engineers returns for the final appearance, which the chairman, apparently, and the staff have in mind, that they should have comparative tables for us showing the 1950 allocation of costs, this 1953 table used by the Missouri Basin Survey Commission, and then a table showing the current allocation of costs for the several main-stem reservoirs, and then have explanatory paragraphs showing the reason for the changes.

The more specific that might be, for instance on the power, of showing what is attributable to the added generators and what is attributable to increases in costs of construction, if that were shown, if we had comparative tables, we could get the picture rather simply and more clearly than we can by narrative statement.

Senator ANDERSON. I think so, too.

I have just had my attention called to the fact that your figures for irrigation start out at $170 million in 1950 in January. They dropped to $142 million in June. They go to $170 million in September of 1951. They go to $173 million in October 1952. They go to $122 million in March 1953. They go to $124 million in September. Pretty soon they are back up to $160 million.

They go around the area pretty rapidly, as this witness is pointing out. I think now if you will bear that in mind, we can permit the witness to go on and finish his statement and bring in your statement at a later date.

I do want to say, Mr. Robinson, that I believe you have performed a useful service already in pointing out these variations.

Will you go on now with your statement?

STATEMENT OF CHARLES A. ROBINSON, JR., STAFF ENGINEER, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION—Resumed

Mr. ROBINSON. I appreciate the remarks of the Senator.

Considering the Missouri River Basin development as a whole, including the main-stem plants and the other plants as well, the allocation to irrigation is $2.24 billion, the 1955 figure, of which only $386 million will be repaid by the water users themselves. That is an irrigation allocation of $2.24 billion—$386 million to be repaid by the water users. Again, considering the basin program as a whole, $1.14 billion is allocated to power, but the power users will repay the staggering sum of $3.07 billion. Thus, of the total project construction cost, irrigation is allocated 41.5 percent and will repay only 7.2 percent. Power is allocated 21.3 percent but will repay 57 percent of the total cost, under present plans. I am still speaking about all of the projects, both Corps of Engineers and Bureau of Reclamation.

Navigation and flood control are allocated 34.4 percent and will repay nothing. Thus those who purchase the power generated at the plants of the Missouri Basin project will repay 88.6 percent of all reimbursable costs.

At the present time the main-stem plants represent 68.7 percent of the total generation of the Missouri Basin project and they represent 61 percent of the Government's ability to recover the costs of the project. At the 1970 level of project development, the main-stem plants will still represent 67 percent of total electric power generation, and will constitute about 59 percent of total project repayment potentials.

Despite the major financial burden that has been loaded on the power features of the main-stem plants, it is nonetheless argued that commercial power is an incidental purpose and should, as such, bear the full hardship of low streamflow conditions.

The National Rural Electric Cooperative Association has supported the contention that commercial power is an incidental feature of multiple-purpose projects, and we have long argued for project evaluation and cost allocation procedures based on this contention. But where, as in the present case, the electric-power features bear the burden of a cost allocation higher than all other features combined, and a repayment schedule of equal proportion, the argument that such features are incidental is absurd. Here power is rather an indispensable feature.

It may be that in the original concept of the Missouri River Basin power was incidental; and it may be that if the project cost allocations are reevaluated in the future, power may again become incidental. But, inasmuch as the Bureau of Reclamation and Corps of Engineers have financially loaded the power features so heavily, these agencies are now most certainly stopped from alleging that power is merely an incidental purpose, and that as such, it should bear the full burden of low streamflow.

Surely, the navigation features, bearing only 34.4 percent of the project cost, half that of electric power, must also bear an equitable portion of the burden of low streamflow; either in the form of an appreciably shortened navigation season or in the form of a shallower channel.

That we believe is at least a partial answer to the short-range problem, perhaps less power but also a good deal less navigation.

Senator ANDERSON (presiding). I think the Army Corps of Engineers when it testifies needs to bear that point in mind, that because of the very heavy load that has been placed on power, it probably adds strength to the O'Mahoney-Millikin amendment that these States that lie in or west of the 98th meridian need to have great protection and not just the water users and navigational servitude because of that fact. I am not trying to burden the record. But in your testimony please bear in mind the enormous burden that has been placed upon power, and, therefore, we must bear that in mind when we talk about what depth the channel should be.

I would like to have your comments on that.

Senator Case. I would like to ask Mr. Robinson a question, Mr. Chairman.

In your study of this, what cost did you find allocated to flood control?

Mr. ROBINSON. I did not attempt to break that down. I worked from the Bureau of Reclamation figures as contained in the 1955 economic analysis, and flood control and navigation were lumped together. In view of the fact that I had a limited time in which to work on the problem, I did not undertake to break those two down.

Senator CASE. Do you mean that this figure that we have been using there for navigation is supposed to embrace the benefits to flood control?

Mr. ROBINSON. Yes, sir, that is correct.

Senator CASE. Mr. Chairman, the basic authorization for this whole program of the Missouri Basin was pegged to flood control. The major benefit that was cited, or the major protection that was afforded the downstream States, was flood control.

The witnesses we heard the other day from Missouri and Kansas, and even from Omaha, and you could add Sioux City if they had been represented, were primarily concerned with getting flood-control benefits. There has not been any diminution of the flood-control benefits by reason of adding generators or by any proposal to use the water upstream. In fact, the benefits for flood control are increased to whatever extent you increase the holding back of the waters upstream.

When we are talking about navigation, if we are talking about flood-control benefits as well as navigation, it ought to be known and kept in mind.

Senator ANDERSON. I agree with the Senator from South Dakota very definitely.

Proceed, if you will, Mr. Robinson.

Mr. ROBINSON. It is obvious that the solution to the long range problem of adequate wholesale power for Bureau customers, and adequate power sales revenue to meet project pay-out schedules depends on selling the maximum quantities of firm power. That is the kind of power that brings the best price.

Although the Bureau of Reclamation, which is responsible for the operation of all reimbursable features of the Missouri River Basin project, has increased the allocation to power of main stem project cost by more than 100 percent since 1953, the same agency has somewhat anomalously adopted a marketing policy rather peculiar under the circumstances. In view of the fact that the power features of the Missouri River Basin project will account for 89 percent of all reimbursable costs under present allocations, and at the very time the Bureau was engaged in raising by more than 100 percent the allocations to power, it was simultaneously evolving a policy for the marketing of Missouri River Basin power, the result of which will be the sale of less than the maximum possible amounts of firm energy.

In September of 1953, the Bureau of Reclamation published its historic marketing criteria for the Missouri Basin project. Paragraph 1 of the criteria for the eastern division stated:

> * * * in the application of this criteria, it must be recognized that the Federal Government does not assume a "utility" responsibility, and therefore, the purchase of thermal generated energy to firm hydro as indicated above will be kept to a minimum.

While the Bureau was doubling the portion of project cost allocated to power, it must have realized the tremendous burden which power would have to carry under the revised allocation formulas. Instead, however, of looking for ways and means for maximizing the sale of firm energy, it was minimizing its responsibility in this field and rejecting the concept of purchasing the maximum economical quantities of thermal energy.

This is indeed a rather inconsistent and self-contradictory power policy which has been followed by the Bureau of Reclamation since 1953 with respect to the Missouri River main stem plants. As late as February 19, 1957, Mr. Fred G. Aandahl, Assistant Secretary of the Interior for Water and Power stated in a letter to Mr. Virgil Hanlon, manager of the East River Electric Power Cooperative, of Madison, S. Dak. as follows:

> It is not the policy of this Department to authorize purchase of energy in order to firm up peaking capacity for which under median conditions there is no available energy. Instead, any remaining peaking power that may be available such as is shown in the table will be sold to customers which are in a position to firm it up with energy of their own, which may be from production in their own plants or acquired by purchases from other systems.

Thus, it is clear that the Department of the Interior is still not reevaluating its power marketing policy adopted approximately 4 years ago, despite the seemingly critical need for review.

Any solution of the long range problem must encompass the marketing of power from the main stem plants in such manner as will assure the availability of maximum quantities of firm power to customers and maximum revenue return to the United States under ex-

isting rate schedules. This is the standard which should set the pattern for purchase by the Bureau of firming steam energy.

We believe that the most equitable solution for the dilemma facing those responsible for the operation of the Missouri River system must, of necessity, be based upon the maximum economic use of every available resource.

We, therefore, propose two avenues of approach for improving the operation of the Missouri, each of which separately or in combination with the other would provide additional firm power and water for irrigation without sacrificing navigation benefits.

We suggest that the Corps of Engineers be authorized and directed to investigate the costs and benefits of converting the existing free-flowing 9-foot navigation channel, and such additional channels as are contemplated below Gavins Point Dam, to a multiple purpose slack-water type navigation system. We are not navigation experts, but we believe it does stand to reason that a slack-water navigation channel maintained by a series of dams would require considerably less water releases from the upstream storage projects during the navigation season, and would thereby allow the retention of large quantities of additional water for the generation of hydroelectric power when it is most needed during the winter peak season.

Moreover, the locks and dams installed to maintain the slack-water navigation system, could be utilized to develop the hydroelectric potential of the river below Gavins Point. I believe the estimates are that an additional 2 million kilowatts of capacity could be made available. That is, I must say, hearsay evidence. I have not checked that figure.

2. We suggest the possibility of expanding the Bureau of Reclamation's Missouri River power system to include a large size lignite fueled, steam generating station. The hydroelectric generating system of the Bureau extends from Colorado through Wyoming, Montana, the Dakotas into Nebraska. It is completely a hydroelectric system, and under the Bureau's present marketing criteria, is not backed up with a maximum economic quantity of steam generation. Indications are that such a plant would be economically feasible.

In a report submitted on January 19, 1955, to a group of Missouri Basin industries and utilities, the industrial engineering firm of Arthur D. Little, Inc., of Cambridge, Mass. estimated that steam generated electric energy, produced in a 150,000 kilowatt plant, burning lignite fuel in North Dakota could be sold at between 3.48 and 5.04 mills exclusive of transmission, and that energy produced in a similar plant of 400,000 kilowatt capacity could be sold at from 3.32 to 4.76 mills per kilowatt hour.

These figures represent private financing and full Federal income tax costs. For a federally financed plant, built either by a rural electric cooperative, and inter-connected with the Bureau system, or built and operated by the Bureau itself the cost would be substantially less.

The rural electric cooperatives of North Dakota already have some experience with lignite fueled steam generating stations. One of these, a 30,000 kilowatt plant at Voltair, N. Dak., operated by the Central Power Electric Cooperative is producing power at approximately 5 mills including production and fixed costs but exclusive of transmission costs.

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Senator ANDERSON. Do you happen to know whether the Arthur Little report was prepared in connection with proposals for the use of nuclear energy?

Mr. ROBINSON. No, sir. I believe not. I have that report here. The group of industries and utilities to whom it was submitted constituted themselves as a resources research committee.

Senator ANDERSON. It was prepared by Mr. McHaulus? That does not matter. I am sorry to have bothered you with it.

Mr. ROBINSON. Sir, there was some mention of nuclear power in here, but that was not the principal purpose of the report.

Senator ANDERSON. I have only had my attention called to it because of the fact that the nuclear energy that is going to be produced at Shippingport, in the first one of these commercial plants, now looks like it might cost as much as 95 mills and eventually we will get down to not lower than 20 or 30 mills. That gave some point as to where you were going to locate some plants where you had the availability of lignite costs which would run under 5 mills. I was curious as to whether they mentioned that.

Mr. ROBINSON. The major cost in savings in burning lignite arises from the fact that the plant can locate right at the lignite field. Transportation, which is a very appreciable item of ordinary coal utilization, is eliminated.

Thus, based on these indications, it appears that a federally financed steam plant of 400,000-kilowatt capacity could, if integrated with the existing Bureau system, deliver power at a cost, including transmission, not exceeding that attributable to the present hydro system.

It may be asked that if such fuel-burning plants are economical why have they not already been constructed, or why has the main-stem hydroelectric system been constructed in the first place if steam capacity could be put on the line at approximately the same cost.

First, such a plant would be base loaded. The existing hydro is required for peaking purposes. Second is the Bureau of Reclamation's eastern division 230-kilovolt transmission system which now links North and South Dakota and which will soon extend into Montana and Minnesota.

This 230-kilovolt high voltage transmission system and the 115-kilovolt subtransmission system was built to dispose of the power from the main-stem hydroelectric plants. Prior to the construction of the hydro plants, there were never any generating plants of equivalent size in the area. Hence there was no need of a regional transmission system such as followed in the wake of the main-stem plants.

Now that such a transmission system is in existence it becomes extremely worth while to investigate the possibility of integrating into it a major steam electric station.

Of course, under the present Bureau's policy governing the marketing of Missouri River Basin power such a scheme is impossible. Indeed it is impossible for the Bureau to purchase from any source whatever sufficient thermal energy to back up its hydro to a maximum economic level. This basic policy would, of course, have to be modified.

In summary, Mr. Chairman, our fundamental axiom is that any improvement in the operation of the Missouri River Basin system must be based upon maximum utilization of the entire resource.

Rather than try to apportion a partially developed resource amongst contending beneficiaries, it is our position that the available resource should be expanded to meet the need of the entire area.

This is our reason for supporting (1) a multiple-purpose slack-water navigation channel below Gavins Point which, without sacrificing the interest of waterborne traffic, would allow a reappraisal of storage and release operations so that additional firm power could be made available and would develop the hydro potential below Gavins Point. (2) Construction of a large lignite-fueled thermal generating plant in North Dakota which could be economically integrated with the existing Bureau hydro system, and modification of the Bureau's Missouri River Basin marketing criteria to permit such integration.

It seems to us that in the Missouri Basin, as in the other sections of the country, we cannot afford to mold our national resource conservation policy around unjustified prejudices or political philosophies which, when applied to major problems, tend to restrict the growth and development of our economy.

We also ask that this subcommittee, in considering a short-term solution to the immediately critical problem brought on by the low streamflow, keep in mind the tremendous financial burden being borne by the power features of the Missouri River Basin project.

We also ask you to keep in mind the needs of the rural electric systems served by the power features. Where it is necessary to curtail project operation, it is our contention that the navigation features must bear an equitable portion of the burden, either by a shortened navigation season or a shallower channel.

Thank you very much, Mr. Chairman.

Senator ANDERSON. May I first of all express to you my regret that your testimony had to come so late and that you had to be so patient while we explored some other subjects.

As I tried to point out earlier, you testified a number of times before committees with which I have been identified, such as the Joint Committee on Atomic Energy.

I want to thank you again for giving testimony that I may not agree with completely but I always find stimulating and interesting.

I think that people who come before these committees of the Congress have a responsibility to try to develop interesting testimony, and you have done that. I want to thank you for it, as I have on previous occasions.

I do not identify myself with all the suggestions you have made, although I sometimes find myself agreeing with them, as I do with some of them that are in here.

I always find you, however, interesting. Thank you for being patient with us.

Mr. ROBINSON. Sir, I certainly appreciate your very magnanimous statement. I want to say it is always a pleasure to appear before your Joint Committees and the other committees also.

Senator ANDERSON. I was not attempting to identify what committees you have testified before.

Senator Case?

Senator CASE. Mr. Chairman, I would like to second what you have said so far as the stimulation that Mr. Robinson has provided, particularly in this instance in his testimony. I think that the sugges-

tions that he has made here are certainly worth of very careful consideration. I should like to ask him if he might consult the recent report, an interim report, which has been made by the National Lead Co. of the operation at the Grand Junction pilot plant of the Atomic Energy Commission on the treatment for uraniferous ores. I am wholly a layman in the field, but it has occurred to me that in view of the fact that roasting is one of the steps in that process that is being used there, there might be a bare possibility of a combination process in which lignite beds might be used for such values as the lignite itself has for possible power production with a recovery of the uranium from the ash.

The process that National Lead Co. has been working on out there has been a leaching of the ash following a roasting of the lignite ores. I do not know whether there is any possible combination.

These uraniferous lignite beds are found in the northwestern part of South Dakota and the southwestern part of North Dakota. The lignite beds in South Dakota, it is estimated, contain as much as half of a billion tons of lignite coal. I possibly should modify that.

I am not sure whether that is wholly restricted to South Dakota or not. But, in any event, the beds of lignite in northwestern South Dakota and southeastern Montana and southwestern North Dakota are of tremendous quantity.

Just the lignite alone warrants the suggestion Mr. Robinson has made. The lignite beds, as I understand it, are somewhat thicker in North Dakota than they are in South Dakota.

Dr. Rothrock, our State geologist, has indicated that the lignite beds in South Dakota are thinner in construction or composition; possibly 4 feet. However, the coal beds in the Alzada, Mont., area and in the Osage, Wyo., area are somewhat thicker. That is a subbituminous coal.

An interesting fact is that at the present time there is a tie line from the Oahe Dam site to the Black Hills area, which was constructed with the thought of flowing power from the Oahe Dam to the Black Hills area and intermediate points. That line was constructed as a means of providing service for five rural electric associations in western South Dakota at an earlier date than they could get power, since they are now in operation and wanted to be in operation before Oahe would be completed.

At the present time, that line is being used to flow power east rather than west. That power is being generated at a coal plant at Osage, Wyo., which was originally developed by the Black Hills Power & Light but which now has two units, I believe, of an association of REA's where they put in the plant and are using the subbituminous coal for the development of power. That power is being developed at the same rate as the Missouri River rate for power.

Senator ANDERSON. I want to say to the able Senator from South Dakota that I conceive it to be part of the responsibility of this joint hearing to study ways in which the now substantial investment and the contemplated future investment of this Government in these dams may be best utilized to protect the taxpayers generally in the country, and, particularly, the people who are in the immediate vicinity of these projects. I am happy with his comments, and hope that those witnesses we have had, whether specifically invited to do so or not,

will feel themselves free to make suggestions to this joint committee as the hearings move toward a temporary close.

We will recess now until 2:30 this afternoon, and have the testimony of Mr. Wise at that time. Following that, we will have the Department of Interior testimony.

Thank you very much.

(Whereupon, at 1:20 p. m., the hearing was recessed, to reconvene at 2:30 p. m., the same day.

AFTER RECESS

Senator ANDERSON. The committee will come to order.

Mr. Wise, would you state your name for the record, please?

STATEMENT OF WILLIAM C. WISE, WISE & POTAMKIN, WASHINGTON, D. C.

Mr. WISE. My name is William C. Wise.

Senator ANDERSON. Sir, I understand that you have some comments on this O'Mahoney-Millikin amendment. We are happy to have it in the record at this time.

Mr. WISE. Yes, sir. In your absence, Mr. Chairman, a copy of an opinion prepared by my firm has been placed in the record.

There also is here a copy of the pertinent parts of the O'Mahoney-Millikin amendment, with the words which we think are determinative of this issue underlined.

We have given a categorical opinion——

Senator ANDERSON. Go right ahead.

Mr. WISE. That under the O'Mahoney-Millikin amendment there is no question that the use of water for the generation of power has preference over the use of water for navigation, and that water may only be used for navigation if it does not conflict with the use of water for the generation of electric power up the stream.

This is, of course, in those areas of the country subject to the provisions of the O'Mahoney-Millikin amendment.

I may point out, first of all, there is a dearth of discussion in the congressional debates with respect to the amendment. There is nothing said on the precise question as to whether or not it applies to the generation of electricity.

I think there are two reasons for that. One is there is very little said on the amendment at all. As Senator O'Mahoney, if he were here, could tell us, the matter was pending before the Senate for several months; in fact, from early in the year until December, when it was passed. However, a report would be given from time to time to the Senate, that the matter was being negotiated and that the conflicting interests hoped to come to an agreement, but there was never any discussion of the amendment itself. When it was actually presented there was very slight discussion in the Senate. Senator Curtis announced that the conflicting interests between irrigation and navigation had been resolved.

In the House, as Senator Case pointed out the other day, Judge Whittington made the same announcement, and there was no other discussion of the amendment at all.

Senator ANDERSON. Whom did you mention first before Judge Whittington?

Mr. WISE. Senator Curtis.

Senator ANDERSON. Curtis?

Mr. WISE. Yes. The other reason is that the language is so clear there would be no reason for there being any discussion of it.

It must be remembered that it is a cardinal principle of construction of statutes, when there is nothing in the legislative history of the statute to give any reason for using other than the ordinary, everyday usage of the words in the statute, that meaning is used. That is the situation we are faced with here. And the key word, of course, is "industrial."

If I may just call your attention only to those words which are applicable, the amendment says:

> The use for navigation, in connection with the operation and maintenance of such works herein authorized for construction, of waters arising in States lying wholly or partly west of the 98th meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the 98th meridian, of such waters for domestic, municipal, stock water, irrigation, mining, or industrial purposes.

We first look at the dictionary meaning of the word "industrial," and it is very clear that it includes the production of electricity.

In the Winston Dictionary, college edition, the word "industrial" is defined in its broad connotation to apply to all forms of economic activity.

In its more limited meaning, it applies to "the productive occupations, as distinguished from finance and commerce."

Therefore, whether it is used in its broad meaning or in a restrictive sense, it definitely pertains to and includes the business of generating electricity.

Senator ANDERSON. I am just trying to develop in my own mind why that is true, when they mention "mining." Certainly, mining must be industrial in this broad sense that you are talking about.

Mr. WISE. That is true, although they obviously wanted to single out mining for special consideration. Being very practical about it, there were some interests that had a particular interest in mining who put that in. Mining would have been included in industrial, so would every other type of industrial activity. If it does not include the generation of electricity, what could it include? I do not see any other form of industry that could be included, if it does not include the generation of electricity. It is true they put in mining, but in connection with "domestic" they did not put in for the use of drinking, washing, cooking——

Senator ANDERSON. Well, do you know any constitutional committee of the States that have tried to draw up language that set a priority on their preferential use of water that has broken domestic down into drinking, washing, cooking?

Mr. WISE. No, sir; I do not.

Senator ANDERSON. What is the next step? The first use is generally domestic, is it not?

Mr. WISE. That is right.

Senator ANDERSON. Then they illustrate irrigation, farming——

Mr. WISE. Irrigation, agriculture, pollution, sanitation.

Senator ANDERSON. Then they generally come to industrial uses.

Mr. WISE. "Industrial" is almost always at the bottom; that is right, sir.

We are not contending here that domestic, municipal stock water, and irrigation does not clearly come before mining or industrial, because we think they do and think they should.

When the courts have gotten to this question, we only found one case which is specifically on the point with respect to the meaning of the word "industrial," as to whether or not it includes the generation of electricity. That one case is a famous landmark case in constitutional law, on an entirely different point, though; not on this point.

That case is the case of *First Iowa Hydro-Electric Co-op* v. *FPC* (151 F. 2d, 20), decided by the Circuit Court of Appeals for the District of Columbia.

In that case the petitioner before the Federal Power Commission, a cooperative association in Iowa, asked for a license from the Federal Power Commission to construct a hydro project. The application was turned down by the Commission on the ground the petitioner had not complied with the laws of the State of Iowa, which required a license of some kind from the State before a dam could be constructed.

One of the contentions made by the petitioner was that the Iowa statute required a license only for the diversion of water for industrial purposes and that, since they were asking for a license to generate electricity, that was not for industrial purposes.

The court barely discussed it. They mentioned it, shoved it aside, and ruled very hurriedly that that was not a defense and said they thought the Commission had rightly rejected the contention.

In the headnote to the case, the reporter sums it up in this fashion, saying:

> The Iowa statute prohibiting the construction of a dam in any navigable stream for the diversion of any water therefrom for "industrial" purposes prohibits the diversion of water for "power" purposes.

I may say they put the word "industrial" in quotes. Although there is only one case on the interpretation of the word "industrial" as to whether or not it includes the generation of electric power, there are a large number of cases on the definition of the word "manufacturing," holding that it does include the generation of power.

I should point out, first, that it is clear that the word "industrial" is broader, and includes the word "manufacturing."

That is stated by Fletcher, the outstanding authority on the law of corporations. He puts it this way:

> The phrase "industrial pursuit," as used in a statute authorizing the formation of corporations for such purpose, is broader and more comprehensive than "trading" or "manufacturing." It includes both, and something more.

It is clear that the word "industrial" has the same meaning—although broader—than the word "manufacturing."

There are a number of cases that we cited in our opinion holding that the word "industrial" includes manufacturing. I will just read from 1 or 2 of them.

In a Kentucky case, *Kentucky Electric Company* v. *Buechel* (146 Ky. 660, F. 160), the court said this, speaking of the generation of electricity:

> It is merely the changing of energy from one form to another, but these units of energy, after they have been so transformed, are so changed that we think

they may properly be termed "manufactured." They could certainly not be recognized, and when their form is so changed that they can no longer be recognized, to the average mind, they are manufactured into a new product.

In any discussion of this question, it is always taken for granted that the word "industrial" includes the generation of electricity. There is never any authority cited; there is no discussion.

For instance, in a Law Journal article, which we quote from in our brief at the bottom of page 2, on the Use of Public Water for Industrial Purposes, the author discusses thoroughly the types of industries which should be entitled to use public water, and he lists hydrogeneration as one of those industries. He did not even discuss the question of whether the use of water for industrial purposes included its use for power generation.

Of course, one who had given an unqualified opinion that the generation of electricity was embraced in the words "industrial purposes" was greatly cheered by Senator O'Mahoney's statement of Wednesday, in which he not only sustained our interpretation, but went much further. We, of course, agree with him, and the comment made by Senator Barrett, in connection with irrigation, that it has long been recognized that the generation of power has been a necessary component of an irrigation project, and that as such it has always been accepted as a beneficial consumptive use.

I might also point out, for the record, that the cooperatives who have appeared here and who are functioning in the Missouri Basin use the vast portion of their electric energy for farming purposes.

To date, not too much of it has been used for irrigation, although a considerable amount—and that is increasing—has been used for that purpose. Virtually all of it—if not all of it, the very vast majority if it—is used in connection with agricultural pursuits, either in the house, in the barn, in farming operations, or in irrigation. The nonfarm use in the few small towns or villages they may serve, or by filling stations or other small industrial pursuits which may come out into the country, is clearly incidental to the agricultural use of such power.

When we get by the word "industrial" all that we have left is the meaning of the words "beneficial consumptive use."

Now, it does not take any discussion, I do not think, and I believe everyone will agree, that the use of water for the generation of electricity is beneficial, and that fact has been brought out very recently in a hearing here in the Senate during the consideration by the Senate of the River and Harbor and Flood Control Act of 1957, just in March of this year.

Senator Watkins then made this observation:

* * * The use of water for power has long been recognized as a beneficial use of water.

That comment appears at page 4121 of the Congressional Record for Thursday, March 28, 1957.

This statement by Senator Watkins followed his citing a number of statutes, including the Flood Control Act of 1944 and specifically the O'Mahoney-Millikin amendment. So he obviously had this use in mind when he said it was a beneficial consumptive use.

We do not have to rely only on that. The record has a number of discussions of the question of consumptive use of water in the genera-

tion of electricity. The situation is that when you store water for generation there is always evaporation, which is clearly a consumptive use.

In testimony back in 1945 by Harry W. Bashore, then the Commissioner of Reclamation, before a subcommittee of the old Senate Committee on Commerce, during hearings on S. 555, in the 79th Congress, 1st session, at page 1730 of the hearings, this discussion appears.

Mr. Bashore said:

I might point out in that connection, that these reservoirs introduce an element of consumptive use in the waters of the stream, expose the surface to evaporation, and consume quite a bit of water.

Senator ANDERSON. That is the reservoir.

Mr. WISE. That is the reservoir; yes, sir.

Senator ANDERSON. That is not essentially the use of the current, the water to generate current.

Mr. WISE. Yes. The water is stored in the reservoir for the purpose of generating power.

Senator ANDERSON. It may also be stored for the purpose of flood control, might it not?

Mr. WISE. Oh, yes; it can be stored for any number of other purposes. But it must be stored in the Missouri Basin projects in order to generate electricity, which is one of the big problems here. That is the reason we are in a hearing by this committee. One of the big problems is you must store, and you must store a substantial amount of water, before you can get adequate power out of it in the type of projects we have in the Missouri Basin. It should be pointed out, you have no conflict between the use of water for navigation and for power unless you have storage. In connection with flow of the river projects there would be no such conflict. Whenever the question arises, it must be as the result of storage and, in that event, there will always be evaporation or beneficial consumptive use.

Senator CASE. There will always be a consumptive use. The evaporation would not necessarily be beneficial.

Mr. WISE. Evaporation would not be beneficial unless the water were being stored either for flood control or other purposes which the chairman mentioned, or for power. Then we submit there can be no question that storing it for that purpose is a beneficial use, as Senator Watkins commented.

Senator CASE. I think it is certainly beneficial use of the water for the production of power. Certainly, the evaporation is a consumptive use. Whether or not we are dealing with them as a joint descriptive term, or as individual terms, I am not so sure.

Mr. WISE. Is the whole not the sum of its parts? It seems to me, Senator, you answered the question there. You said it is both beneficial and consumptive. When you join the two together, it seems to me that it must be a beneficial consumptive use.

I would like to call your attention to the discussion which took place on March 20, 1956 in the hearing before the Senate Committee on Interior and Insular Affairs, one of these committees participating here today.

The witness appearing at that time was Mr. Grimes, who has also appeared at this hearing, chief engineer and executive officer, South Dakota Water Resources Commission.

This colloquy occurred among Mr. Grimes and Senators Watkins and Barrett.

Mr. GRIMES. That is correct. Power being referred to as a nonconsumptive use, as far as the lower people are concerned, it is questionable. It is a consumptive use.

Senator WATKINS. It certainly is a consumptive use.

Senator BARRETT. It is a consumptive use because of evaporation that occurs in the dam storage; is it not?

Mr. GRIMES. That is a factor.

Senator BARRETT. And it is a considerable factor in a good many cases; is it not, Mr. Grimes?

Mr. GRIMES. Yes, the evaporation rate; whenever you increase the surface area, of course, you increase the evaporation rate.

Senator BARRETT. It depends on the area where it is located, but in some cases it is a considerable factor and amounts to a distinct consumptive use, is that not right?

Mr. GRIMES. That is a consumptive use, that evaporation. It is lost to use in any other area.

Now, we respectfully submit, Mr. Chairman, that even if there were no consumption of water, although we do not have that situation in the Missouri Basin; as I pointed out there is no conflict with a flow of the river project, but where there is storage there is evaporation. Even if there were no such evaporation, industrial purposes, including the generation of power would still have priority over navigation, because the words "beneficial" and "consumptive" here are obviously descriptive words, and not words of limitation. They were used to describe the uses because historically the usages to which Congress wished to give priority were also consumptive uses and, obviously, they were beneficial or Congress would not have given them that preference.

We submit, that if in connection with irrigation—with the advances in modern technology—it some day becomes possible that all of the water, or at least a part of it, can be reclaimed and used over again, the fact that the water was not consumed would certainly not take away the preference given to irrigation. I think when you look at it in that sense it becomes quite clear that these words are used as descriptive words, and not as words of limitation. Certainly it is what we lawyers call an a fortiori case.

If you give a use preference when it consumes the water, you certainly would give it preference when it does not consume the water and you are able to use the water over again for some other purposes. It is the nature of the use that entitles it to priority and not the fact that the use does or does not consume water. The more essential uses are given priority.

I submit, respectfully, that follows so clearly, that there can be no question about it, and that the very able exposition of the statute given by Senator O'Mahoney on Wednesday and which was confirmed yesterday by Congressman Wayne Aspinall, another outstanding authority in the field of water use and water control, completely disposes of the matter.

Mr. Chairman, I have just a slight additional statement, when we finish with the discussion of the opinion. You may want to ask some questions.

Senator ANDERSON. Are there any questions on this?

Do you intend to put this whole brief in the record?

Mr. WISE. It has been put in the record.

Senator ANDERSON. Very well.

Mr. WISE. I would like to say this on behalf of my clients. You asked, Mr. Chairman, of our opening witness, what did he want this committee to do.

Senator ANDERSON. Yes.

Mr. WISE. What were we here for? He said other witnesses would answer that.

In your absence over the 3 days, there have been a lot of specific problems outlined by the various witnesses, some of them small, some of them large, of an individual nature, applying to a particular area.

The gentleman from Montana gave a very vivid description of their problems.

We would like the committee staff to look into those problems and see if something could not be done to correct them.

In addition to that there are five major problems—if I may—I would like to sum up and point out to you.

Senator ANDERSON. All right.

Senator CASE. Mr. Wise, before you do that did you develop before I came in this afternoon the application of the preamble of the 1944 act?

Mr. WISE. No, sir. I am sorry. In my rush I overlooked that.

Senator CASE. I think that has to be considered, in giving the full benefit of the amendment.

Mr. WISE. You are right, Senator.

In our opinion you do not have to resort to the preamble unless there is some ambiguity in the statute itself, in the body of it, that requires explaining. However, if there had been any ambiguity here then it would have been completely taken care of by the preamble. As Senator O'Mahoney pointed out—and I believe you pointed out this language, too, the other day, Senator Case—the preamble clinches it, if there were any question in the body of the statute itself. However, we submit there is no question with respect to the meaning of the statute itself.

If I may, I shall read the preamble for the record. We have submitted for your information a copy of the O'Mahoney-Millikin amendment, with the determinative language underlined.

The preamble to section 1 (b) of the Flood Control Act of 1944, which is known as the O'Mahoney-Millikin amendment reads:

*** * * It is hereby declared to be the policy of the Congress * * * to limit the authorization and construction of navigation works to those in which a substantial benefit to navigation will be realized therefrom, and which can be operated consistently with appropriate and economic use of the waters of such rivers by other users.**

Senator CASE. It seems to me, Mr. Chairman, that that very definitely subordinated navigation to "other uses."

Mr. WISE. That is our position here.

Senator CASE (reading):

*** * * It is hereby declared to be the policy of the Congress * * * to limit the authorization and construction of navigation works to those in which a substantial benefit to navigation will be realized therefrom and which can be operated consistently with appropriate and economic use of the waters of such rivers by other users.**

Senator ANDERSON. Yes.

Senator CASE. That certainly seems to me to be a subordination of navigation to other uses.

Mr. WISE. Mr. Chairman, I am certain that all of the rural electric cooperatives that have been represented here and the other witnesses who testified in support of preserving the necessary water for upstream are definitely sympathetic to the requirements and the desires of the people downstream who want to use the water for navigation purposes. We do not want to do anything at all to interfere with the use of the water for navigation purposes. On the other hand, if there is going to be a shortage of water, then we think the law should be complied with.

We respectfully submit that the Corps of Engineers has mistakenly interpreted the law and are now violating the law to the detriment of our cooperatives and the other upstream users.

We would like to suggest—and Mr. Robinson, I believe, suggested at least two of the things, which we think could be done to take care of the situation. What we are asking these committees to do in addition to taking care of the numerous individual problems which are presented in the record is to instruct the Army Engineers to make a study of the development of slack water navigation on the Missouri. We think we are entitled to have what the people in the Tennessee Valley have. I do not mean the administrative machinery, I mean the physical operation of the Missouri should be similar to that of the Tennessee River, where they have produced excellent results. Slack water navigation would appear not only to take care of the navigation problem, but the study of the Federal Power Commission on the potentialities of future hydro development, which lists 2,000,000 kilowatts for the Missouri Basin, in addition to the capacity of projects already authorized, is based on slack water navigation. It also should take care of a very serious current problem which the navigation people, if they had time, could tell you about, which exists in the river now, and it increases measurably the flood control potentialities of the project.

Incidentally, it will pay for itself to a large extent by the revenues received from the generation of power.

Senator HRUSKA. Mr. Wise, you just referred to the Corps of Engineers as doing something which is a mistaken notion of the law, and so on.

We had some testimony here yesterday or the day before that the Corps of Engineers did not make any unilateral decisions. Is it your understanding that they do?

Mr. WISE. It is my understanding— and I may be mistaken—that they have the final responsibility.

Senator HRUSKA. They actually turn on the valve and turn it off. Who is it that makes the decision? What is the source of the decisions resulting in the turning off and the turning on of that spigot?

Mr. WISE. I can only give you my understanding of it, Senator.

My understanding of it, under the law, or under the administration of the reservoirs that is set up, is that the Army engineers have that responsibility—that the Interagency Committee, or the Reservoirs Control Committee advises them and consults with them, but that the responsibility is that of the Corps of Engineers.

Senator HRUSKA. We understand that. I was wondering how your testimony and the implication of your words would fit in with the tes-

timony before this committee previously, that the Corps of Engineers do not make unilateral decisions in that regard, but take into consideration the instructions received from the coordinating committee of the Reservoirs Control Committee—whatever it is.

Mr. WISE. My understanding was that since they have the final responsibility, they are the ones who have interpreted the statute, and we submit they have interpreted it mistakenly. And it is a question of: Can you use water for navigation when it is inconsistent with the use of the water upstream for the generation of power?

Do I make that clear, Senator?

Senator HRUSKA. You make that clear.

Do you want the committee to understand that it is their sole responsibility, and whatever merit or demerit attaches to their decisions is for them alone to assume?

Mr. WISE. I guess that would be too broad, in view of the advisory groups with whom they work.

I was making this request, Senator: We are asking these committees to work through the Corps of Engineers, because it is my understanding the corps has the legal responsibility for it.

Senator HRUSKA. Yes.

Mr. WISE. I was not saying that critically of them, except we do think our interests are being harmed by a mistaken interpretation of the law on their part.

Senator CASE. Mr. Chairman, if the Senator would yield?

I wonder if we are going to be precise about that matter, and try to determine in whose name the responsibility for the decision is made?

If you would go back to the Secretary of the Army as the inheritor of the powers of the Secretary of War, of the War Department, you will find the Flood Control Act, in that section which provides for the sale of power, says that—and I am just paraphrasing it—but it says in effect that the power which the Secretary of War determines is not needed for the operation of the facilities or works shall be turned over to the Secretary of the Interior.

So that if you are trying to pin it down as to the name of somebody over whose signature a decision would be final, it would be the Secretary of the Army as the inheritor of the Secretary of War, I believe.

Mr. WISE. You are entirely correct, Senator Case.

All I am trying to say is we are asking you to have whoever is responsible—whom I would think of in terms of the Corps of Engineers—take the necessary action.

Senator HRUSKA. I am sorry.

Mr. WISE. That is the point I raise.

Senator HRUSKA. Thank you.

Mr. WISE. Our other request is that a single agency be set up to make the determination as to how the water is to be used, and to administer these projects so there would not be the conflict which all of the testimony relates to.

The final request is that the Bureau of Reclamation be instructed to make studies to see if the firming up of hydro with steam which Mr. Robinson spoke of could not be worked out. We really think that that could solve a lot of these problems.

Senator ANDERSON. I wonder here—I started to ask Mr. Grimes when we finished, and he said he recommended that the matter be

referred to the State team in the basin, with whatever guiding observations the committee sees fit to add.

Do you want to revert to another agency committee or do you want this committee to——

Mr. WISE. No sir, and I think I speak for the vast majority—which I would estimate to be at least 95 percent, although I may be mistaken—of the people who have appeared here this week in support of the resolutions adopted by the legislatures of the 3 States. While Mr. Grimes has made a very valuable contribution to this record, and we subscribe to almost everything he said, on that particular point we feel that the problems have been before the States' group, and that is why we are in the situation that we are in today. We are specifically and expressly asking these two commmittees to do something about it directly and not to refer it back to that committee.

Senator ANDERSON. That is what you think these resolutions mean when they say to investigate the subordination of power generation on the Missouri River to navigation?

Mr. WISE. Yes, sir.

Senator ANDERSON. You think there has been subordination of the power to navigation?

Mr. WIES. Yes, sir. And sitting here listening to this testimony for 3 days, it seems to me that that has been rather clearly established.

I want to emphasize that we do not want to do anything to hurt navigation. However, if the Bureau will not so operate the powerplants so as to get the most power out of them, so we can be taken care of, and Congress in its wisdom does not see fit to insist on slack navigation of the river, which we think would help to take care of the problem, then there is only a limited amount of water to go around, and we think the law should be complied with and that does require that navigation get less water than it has in the last few years.

Senator HRUSKA. Do you think putting the authority in one individual would achieve that, where it cannot be achieved now.

Mr. WISE. I would not say it cannot be achieved now. It seems to us it could be achieved easier and simpler—would be a simpler job—by having one central agency or administrator.

Of course, flood control, irrigation, domestic sanitation and pollution, are uses paramount to either power or navigation.

We feel this way Senator: Very shortly, if something is not done about slack water navigation there is going to be a rear conflict entirely aside from the use of water for power between the uses of water for irrigation upstream and navigation downstream, if we hit a couple more years like we have had.

Senator HRUSKA. The thing that troubles me about it is something one of the other witnesses brought out. Suppose such agency is created and assumes control. Then it comes up with a rejection of slack water navigation, comes up with the rejection of your contention, and so on, and that Commission, or whatever, is in there for 3, 6, or 9 years, respectively. Who would you go to then for the purpose of relief?

One of the witnesses testified that he would much rather trust Congress because, after all, Congress is more responsive to appeals of this kind, and it can make adjustments.

If you had an authority of that kind and they could not quite see eye to eye with you, what is your recourse then?

Mr. WISE. We would have to come back to Congress. If, in our opinion, they are acting mistakenly, or illegally, we will come back to Congress.

Senator HRUSKA. That answers my question.

Mr. WISE. The other request we have, Senator, is to carry out the suggestion you made this morning, and Senator Case joined in with you, that Congress determine this question of cost allocation.

We feel Mr. Hanlon's and Mr. Robinson's testimony indicated our interest was being harmed under the present method of cost allocation. We think that determination, as you indicated it should be, should be made by Congress.

Senator ANDERSON. Thank you.

Mr. WISE. Thank you very much.

Senator ANDERSON. Mr. Weinberg and Mr. Fisher of the Department are to be heard.

Will you please state your name for the record?

STATEMENT OF EDWARD WEINBERG, ASSISTANT SOLICITOR, POWER, DEPARTMENT OF THE INTERIOR; ACCOMPANIED BY EDWARD W. FISHER, ASSOCIATE SOLICITOR, WATER AND POWER, DEPARTMENT OF THE INTERIOR

Mr. WEINBERG. My name is Edward Weinberg, Assistant Solicitor of the Department of the Interior, and I have with me Edward W. Fisher, Associate Solicitor, Water and Power, of the Department of the Interior.

Senator ANDERSON. Mr. Weinberg, do you have some statement to present to the committee? You understand what the controversy is about or the question is about?

Mr. WEINBERG. Yes; I do, Senator. I understand basically it concerns the matter of release of water and storage of water.

Senator ANDERSON. It is not just a question of priority of water, the O'Mahoney-Millikin amendment. It has to do with the statement that electric-power rates must be fixed in such a fashion and at such a level to make sure that the irrigation would be properly subsidized.

Do you have any question as to whether or not section 5 or section 9 has any responsibility?

Mr. WEINBERG. Yes, Senator. That question accounts for our presence here today.

It was raised by letter of May 1 from Senator Murray to Secretary Seaton, asking for a statement of the position of the Department in connection with the application of power revenues, principally those from the Army developments in the Missouri River Basin against irrigation costs on projects in the basin being developed by the Bureau of Reclamation of the Department of Interior, and it is to that question, Senator, that I am prepared to address myself.

Senator ANDERSON. Go ahead.

Mr. WEINBERG. I want to express my apologies to the committee at testifying orally at length without giving the committee an opportunity to follow me in a prepared text.

Senator ANDERSON. May I read just the language to which I raised some question just the other day?

Mr. WEINBERG. Yes.

Senator ANDERSON. This is the testimony of Mr. Grimes. He said:

And I would like to add here that it is a very, very important understanding that we have in the basin that it is the power investments and those costs allocated to power with 3 percent interest that will be repaid in 50 years, but that the rates for the power sales shall be sufficient to return, within whatever the payment-period is that is provided by Congress, the portion of the irrigation costs which the irrigators themselves cannot pay.

Mr. WEINBERG. Yes, sir.

Senator ANDERSON. And it was to that question that I directed my attention first, and I think others came along and directed theirs, whether or not there is any obligation under the law that the rates shall be sufficient to return the power costs, and that portion of the irrigation costs that the irrigators cannot pay.

Mr. WEINBERG. Yes.

The question involves the interpretation of the application of the provisions of sections 9 and 5 of the Flood Control Act of 1944.

It is the position of the Department, and has been the position of successive Secretaries of the Interior from the enactment of the act, that section 9 of the Flood Control Act of 1944 authorized the comprehensive development of the Missouri River Basin consisting of two coordinated parts—one part to be undertaken by the Department of the Army, the other part to be undertaken by the Department of the Interior—together comprising an overall plan for multiple purposes, such as flood control, irrigation, power, navigation, fish and wildlife, and other beneficial purposes.

We have to consider in this matter first the question of the interpretation of the statute in the light of the plans appended in Section 2, second, there is the issue of the implementation or the administration of this statute by the Department charged with the marketing of power and of the development of the irrigation, and third, we come to the matter of the congressional recognition of the departmental implementation and interpretation of the statute.

Now, when we read section 9 and we read section 5, it is immediately apparent that there is raised here a problem originally of what was the intention of Congress, for, if the statutes were entirely clear on the matter, we would not be here trying to explain the departmental position and the question would not have been raised.

It is the view of the Department that the key to the matter is to be found in an examination of the plans that were authorized and adopted by section 9, although we must concede at the outset that while the Department has taken one view, other views can also be taken on a reading of the statute, and particularly could this have been the case at the beginning of operation under this statute especially if careful consideration is not given to the Senate and House documents comprising the Missouri Basin plans.

Senator ANDERSON. Why do you refer to section 9 and not simultaneously to section 5?

Mr. WEINBERG. The issue, Senator, is which of those sections applies. Upon examination of the plans that were approved in section 9, it is clear that the heart of the Interior Department's plan, which is one of those which was approved, was a basinwide development, under principles of reclamation law, in which all of those green areas shown on

the map there would be developed for irrigation purposes under the principle of reclamation law that all of their costs must be returned, with the consequence that that part of those costs which were to be returned which could not be returned by repayments by the water users would be met under reclamation law from revenues derived from the sale of power. The Department's plan recognized that most of this power would be developed by the Army engineers but that the Department would market it, would build the transmission lines, and the rates would be established under the provisions of reclamation law.

That being the case, Senator, upon the examination of the plans, it was the conclusion of the Secretary that section 5 had no application to the sale of power from Army projects in the Missouri River Basin.

Senator ANDERSON. House Document 475—what was that?

Mr. WEINBERG. House Document 475 is the Army's plan for the——

Senator ANDERSON. Army plan?

Mr. WEINBERG. Yes.

Senator ANDERSON. I was hearing you discuss it as though it was only the Department of the Interior's plan.

Mr. WEINBERG. Not at all, Senator.

Senator ANDERSON. There was then an Army plan?

Mr. WEINBERG. Oh yes; yes, indeed.

Senator ANDERSON. Good. We agree on that.

Mr. WEINBERG. We certainly do.

Senator ANDERSON. Because in the Army plan there were some programs set forth too, were there not?

Mr. WEINBERG. Yes; principally for flood-control purposes.

Senator ANDERSON. And erection of dams?

Mr. WEINBERG. Construction of dams.

Senator ANDERSON. Which would generate power?

Mr. WEINBERG. That is correct, Senator.

Senator ANDERSON. There are, therefore, two kinds of plans?

Mr. WEINBERG. That is correct.

Senator ANDERSON. Therefore, there might be two ways of selling power?

Mr. WEINBERG. That is entirely correct.

But, in the Army plan, there was not a consideration of the question of who was to market the power and under what circumstances the power was to be marketed. This was dealt with at length in the Interior plan. It was not dealt with in the Army's plan.

The Chief of Engineers recognized, in transmitting the Army plan, that there would be the opportunity and the necessity for other agencies to play a part in the Missouri Basin development, in order for all agencies to engage in the accomplishment of a truly comprehensive plan, and the Army report does not deal with the question of paying off the irrigation costs or the marketing of power, as such.

Senator ANDERSON. Would it have been proper for the Army, that does not have anything to do with the Bureau of Reclamation, to set forth in its plan how the irrigation costs would be paid for?

Mr. WEINBERG. I think that is a matter in which the Army properly deferred to the Department of the Interior, although I would not say it would be improper for the Army as an agency of Congress, when called upon to make a comprehensive survey, to offer its views to the Congress.

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Senator ANDERSON. On irrigation?

Mr. WEINBERG. On irrigation, yes.

But the issue, as the Department saw it, was that there were these two plans developed.

The Army's plan was House Document 475. The Interior Department's plan was Senate Document 191.

There were certain physical differences between the two plans, and those were reconciled in Senate Document 247 of the 78th Congress, 2d session, which was a joint report to the Secretary of the Interior and Secretary of War from the Chief of Engineers and the Commissioner of Reclamation announcing the reconciliation of the plans.

The Commissioner and the Chief of Engineers annouced their conclusions that they had now developed a unified plan in these words, which are quoted from paragraph 16 of Senate Document 247:

> Development of the Missouri River Basin in accordance with House Document 475, 78th Congress, 2d session, and Senate Document 191, 78th Congress, 2d session, as coordinated in the included joint engineering report, if authorized as a unified plan, will secure the maximum benefits for flood control, irrigation, navigation, power, domestic and sanitary purposes, wildlife, and recreation.

I stress the phrase "if authorized as a unified plan."

We turn then to Senate Document 191 to see how the Interior plan dealt with this specific matter of marketing the power and meeting the costs of the irrigation development which were over and above the ability of the water users to pay, and I will refer to certain segments of Senate Document 191 at this point.

In the letter, at page 1 of Senate Document 191, from Secretary Harold L. Ickes to the President, dated May 1, 1944, transmitting the Interior Department report to the President for his review, prior to its submittal to the Congress, he had this to say:

> The initial stage proposed in this report would involve expenditures estimated at $200 million. The economic and human gains which can be expected will amply justify this expenditure. The plan has engineering feasibility. Water users, rural and urban, would be expected to repay in accordance with their ability and the benefits extended to them, part of the costs, and I find they can probably meet the charges indicated. Power users would be expected to repay additional parts of the cost. It reasonably can be expected that these returns to the United States Treasury will be effected. Flood Control and Navigation allocations would be nonreimbursable.

Then he goes on to say in the last paragraph:

> I find desirable and feasible the development of the Missouri River Basin in accordance with this Report on the Conservation, Control, and Use of the Water Resources of the Missouri River Basin, and I recommend authorization for construction after the war of the initial stages, in accordance with the report and as contemplated in section 9 of the Reclamation Project Act of 1939.

The report of the Commissioner of Reclamation to the Secretary of the Interior, at pages 2 to 4 of Senate Document 191, had this to say, in describing the proposed plan:

> The reclamation plan proposes a total of 90 reservoirs, with the combined capacity of 45,700,000 acre-feet, most of the reservoirs on tributaries of the Missouri for use in irrigation, flood control, and power development, but two-thirds of the reservoir capacity on the main stream for use in flood control, aid to navigation, power development, and irrigation.

I interpolate here to say when speaking of the reclamation plan, the Commissioner of Reclamation there was speaking of the ideas of the

Bureau of Reclamation as to what was to be constructed, but not that the Bureau of Reclamation was to construct the main-stream reservoirs.

He went on:

When fully developed, the plan would provide water for the irrigation of 4,760,400 acres of dry land and supplemental water for 538,000 acres of land now irrigated but not assured adequate water in years of low run-off. Seventeen power plants, in the completed power system—

and these plants let me point out, included plants to be constructed by the Department of the Army, as well as to be constructed by the Department of the Interior—

would supply seasonal power for pumping water for irrigation, and nearly 4 billion kilowatt-hours of firm power, annually for domestic, commercial, and industrial use.

Then later on in the Commissioner's report of April 28, 1944, appearing at page 4 of Senate Document 191, he commented upon the views of the Department of the Army in this fashion:

I agree with the Chief of Engineers that details can be worked out satisfactorily through cooperation as the projects are constructed on the tributary streams. I agree that the agency with the dominant interest should construct the dams and other works in the basin, and I agree that main-stem storage dams should be constructed by the corps, owing to their close relationship with flood control and navigation. The reclamation plan provides a storage capacity in main-stem reservoirs of 24,950,000 acre-feet, which is 10,250,000 acre-feet less than that proposed by the corps, but when considered together, with more than 10 million acre-feet of storage provided upstream, this amount is believed to be sufficient to provide full flood protection and ample storage for regulations for navigation.

Then followed some discussion in the Commissioner's report about the Garrison and Oahe Dams.

Following that the Commissioner went on to say:

I find that the proposed development of the Missouri River Basin is needed, as conclusively shown in the report. The plan has engineering feasibility. The ultimate cost is estimated at $1,257,645,700, and the annual benefits of the completed development would be 2.57 times the annual cost.

Then follows a table of benefits, including the benefits from the Army power development, the flood control, navigation, and so on.

"Irrigation," he then says, "would be expected to repay in 40 annual payments $298,000,000. Power revenues in 50 years would repay $423,100,000, and municipal water users would repay $20,000,000."

Then he went on to recommend the plan.

Senator ANDERSON. Will you tell us where you were reading from, now?

Mr. WEINBERG. I was reading from page 4 of Senate Document 191.

Senator CASE. That would be controlling with respect to Fort Randall, Big Bend, and the Oahe Reservoir?

Mr. WEINBERG. Yes, in terms of applying the revenues against the costs.

Senator CASE. But it would not be applicable with respect to the Gavins Point Reservoir and the Garrison Reservoir?

Mr. WEINBERG. There was agreement on those. There were conflicts in principal features which were adjusted.

Senator CASE. Well, paragraph (c) of section 9 says: "subject to"—and I will skip a few words to emphasize this—

subject to the allocations of costs and the repayments by water users made in said House and Senate documents.

And so forth. The coordinated document, No. 247, says, in paragraph 4, that it was agreed, and so forth, with regard to the other two subdivisions, that everything was agreed upon "with the following modifications."

(a) (1) the Gavins Point Dam and Garrison Reservoir to develop in accordance with House Document 475. That would be Army. Gavins Point and Garrison to be developed with the allocations of cost and repayments by water users, and so forth, as recommended in the Army report.

And the next paragraph (2):

The Fort Randall Reservoir, the Big Bend Reservoir and the Oahe Reservoir to be developed in accordance with Senate Document 191.

That would mean that the Senate document, the Bureau of Reclamation plan for Fort Randall, Big Bend, and Oahe, would be followed.

Mr. WEINBERG. These go to the physical structures, Senator Case. There was disagreement as to the size of some of these main-stem reservoirs and where they should be located.

Senator CASE. Well, just a minute. Section 9 (c) does not go to the physical structures only.

Mr. WEINBERG. Oh, no.

Senator CASE. It says:

subject to the findings and recommendations regarding the benefits, the allocations of cost, and the repayments by water users made in such documents.

Mr. WEINBERG. That is correct. And that is the premise upon which the Secretary concluded that the power from these Army structures was to be marketed under reclamation law for the purpose of meeting the irrigation costs from these irrigation developments that were beyond the repayment ability of the water users. That is the significance of the basinwide findings and recommendations. And it is in that context that the Department's report discussed the amount that could be repaid by the water users and the balance of the irrigation costs that was to come from revenues developed from the sale of the power throughout the basin without regard to the agency which constructed and operated the powerplant. And there are some further recommendations in the Interior plan which bring that out.

Senator CASE. Going one step further: Under the Federal reclamation laws, where do repayments go when they are collected?

Mr. WEINBERG. From works that are constructed by the Secretary of the interior, they go into the reclamation fund.

Senator CASE. Where are the receipts going from the power sold from the main-stem reservoirs today?

Mr. WEINBERG. We have just recently advised the General Accounting Office that as we view it the revenues that are allocable to the Army powerplants should be deposited in the general fund of the Treasury to the credit of miscellaneous receipts.

Senator CASE. Under what authority?

Mr. WEINBERG. Under this: The deposit of revenue in the reclamation fund is controlled by the provisions of the Hayden-O'Mahoney

amendment to the departmental appropriation act for the fiscal year 1939. That provides that all revenue received from reclamation development constructed by the Secretary of the Interior through the Bureau of Reclamation should be deposited in the reclamation fund. Since the Bureau of Reclamation or the Secretary of the Interior has not constructed Gavins Point Dam, Oahe Dam, or the other main-stem dams, the Hayden-O'Mahoney amendment does not apply. Under general principles of law all revenues for which not other disposition is provided are for deposit in the general fund of the Treasury.

Senator CASE. Section 5 of the Flood Control Act of 1944, as you know, which relates to the power energy generated at reservoir projects under the control of the War Department, concludes with this sentence:

> All moneys received from such sales shall be deposited in the Treasury of the United States as miscellaneous receipts.

And you are now saying, then, that the money presently being collected for power generated at the Army-constructed dams is going into the miscellaneous receipts of the Treasury, not under this sentence of section 5, but under application of general law.

Mr. WEINBERG. That is correct.

Senator CASE. How do you construe it that way, in the face of the specific provision in this act where the Missouri River program is authorized?

Mr. WEINBERG. Because the Department has taken the position from the outset that in proceeding to market power from Army dams in the Missouri River Basin it is proceeding under authority conferred by section 9, which brings in the reclamation law, Senator, and in the absence of a provision in the reclamation law dealing with the deposit of revenues from projects not constructed by the Secretary of the Interior, they must, under general principles of law, be deposited in the general fund of the Treasury.

Senator CASE. And you contend that section 5 does not apply to the Missouri River program?

Mr. WEINBERG. This is the position of the Department, Senator.

Senator CASE. And how does the Secretary of the Interior get the power from the dams constructed by the Corps of Engineers in the Missouri River Basin?

Mr. WEINBERG. Because that was a part of the two plans that were approved by the Congress in section 9 of the Flood Control Act of 1944.

Senator ANDERSON. What about transmission lines?

Mr. WEINBERG. The transmission lines are constructed under reclamation law.

Senator ANDERSON. Then the revenues from those flow back to the reclamation fund?

Mr. WEINBERG. That would go into the reclamation fund until there had been deposited therein, in accordance with the Hayden-O'Mahoney amendment, an amount equal to the costs to be returned from power, and thereafter under the Hayden-O'Mahoney amendment those revenues, too, would go into the general fund.

Senator O'MAHONEY. Mr. Chairman, would the Senator yield to me for a minute?

I venture to make the request, because I have another committee in progress, and I am doing some work for that, and I must leave. But I would like to make a comment, which is not at all relevant at the moment to what Mr. Weinberg is saying, but which nevertheless is prompted by some of the things that he has said.

This compact, and the plan that was finally developed, was the result of the final action of President Roosevelt in requesting, to use a mild word, the Bureau of Reclamation and the Army engineers to get together.

One of the great difficulties that I had, when I was before serving on this committee and trying to bring about the development of the Missouri River Basin, was that both the Army engineers and the Bureau of Reclamation were spending money which they sought from Congress year by year, planning for the development of the water sites. Both Bureaus wanted the same sites. Both Bureaus sought to draw plans for the same sites.

In my own State, the Boysen Reservoir was studied by the engineers and studied by the Bureau of Reclamation. We had lots of studies, but we had no construction.

I talked it over with the Secretary of War. I talked it over with the Secretary of the Interior. There were no results. And finally I went to the White House, and I said to Franklin D. Roosevelt, "Mr. Roosevelt, there is no power in the United States except yours to knock the heads of the Army engineers and the Bureau of Reclamation together so that we can get a Missouri Basin development plan."

I said, "Mr. President, you want to develop this area, you want to have this water used by the people who live there. Won't you please make these two subordinate bureaus of yours get together on a joint plan?"

That was the origin of the Pick-Sloan plan. Pick was the head of the engineers, General Pick, a very able man, and Sloan was a very able engineer, for the Department of the Interior and the Bureau of Reclamation.

But all of this rests upon the basic concept that water is to be used by the people who can use it. I have always been proud, on St. Patrick's Day, when addressing an Irish aggregation, to tell them that the only Brehon law, the ancient Irish law, which survives, of which I have any knowledge, is the water law of the West. Because the land in ancient Ireland could not be held by anybody in idleness. If anybody in the family or in the group or in the clan saw some land which was not being used, he could go to the authorities and say, "This land is not being used. I can raise my family on it." And he got the use of it.

Now, that is the rule with respect to Western water. That is why the Irish are so prosperous in the West.

Senator ANDERSON. I knew he would get the Irish into it.

Senator O'Mahoney, the discussion arose over a statement that was made here, which said that they had in the basin a very clear understanding that the power costs allocated to power with 3 percent interest would be repaid in 50 years, but that the rates for the power sales shall be sufficient to return within whatever the payment period is as provided by Congress, the portion of the irrigation cost which the irrigators themselves cannot pay.

Now, it is that latter part that some of us questioned a little bit, because there has been as yet no large interest in irrigation. There is $2¼ million charged against irrigation, and apparently it is the contention that before any drop in our rates can take place, not only do the costs allocated to power have to be paid but you go out and set up another $2 billion for irrigation projects that will never be built, that may never have feasibility and may never be approved by the Congress. And we wondered if the rates might not be lowered and adjusted when the power features had been paid for.

Senator O'MAHONEY. Well, of course, the objective of that amendment was, of course, to obtain revenue which would be applied to the construction cost.

Now, I adhere to the general principle that you can frequently increase your revenue by lowering your rates. And if by so doing the revenue applicable to irrigation and power costs can be enlarged, then I would have no objection to lowering the rates.

But I do believe that both in Congress and in the Department we should be very careful not now to suggest reclamation projects which are really not feasible.

The whole basis of the reclamation law is to build feasible projects.

Senator ANDERSON. And if there is an irrigation project running to several hundred thousand acres at a time when we are having some difficulty with our present agricultural production, that would add a burden of $1,300 an acre to farmland—and not greatly improve.

Senator O'MAHONEY. It would certainly be an argument of infeasibility.

Of course, in 1939 we amended the reclamation law in order to provide for the multiple-purpose projects. Now we want to use the water for all proper purposes to the utmost. The was what was in the minds of those of us who sat on the Irrigation and Reclamation Project Committee at that time. We desired to promote not only reclamation and power but to promote reclamation and wildlife and those other water uses which bring people into an area. But there was always the rule of reason. We did not believe that reclamation should be carried on to an unreasonable extent.

I have had many a battle with the Bureau of Reclamation about projects which actually turned out to be infeasible after they had been constructed, because sufficient time had not been taken in the beginning to make sure that the land was actually arid.

Senator CASE. Well now, Mr. Chairman, that certainly is a very important question here. A great deal of the proposed irrigation under the Missouri River program is still in the state of examination.

The question of feasibility has not been determined, and particularly with respect to some of this land that Senator Anderson suggests may represent an investment by somebody of $1,300 per acre, or whatever it may be.

Now, then, the question is: Shall the power users be saddled with a rate of power based upon the anticipation of taking care of the cost of an irrigation project which has not yet been proven feasible and which may never be constructed?

Senator O'MAHONEY. Well, I think that in looking into the future we must always look from the standpoint of what is feasible.

Senator ANDERSON. Here we have a project that is going to generate a tremendous lot of current. Now, if you try to put behind it $2 billion of a potential future reclamation project that will involve very expensive irrigation, running a minimum of, let us say, $500 an acre to all the land, and well over a thousand dollars to others, you will come out with a rate that is not an industrial rate that is at all competitive to what exists in the Pacific Northwest.

Senator O'MAHONEY. Well, as I said in the beginning, reduced rates can produce higher revenue. And that should be the controlling factor. In other words, you cannot sit around the table now and judge what the rates ought to be 25, 30, or 50 years from now.

Senator ANDERSON. No, but there are two sections of this Flood Control Act in 1944, as you know better than I do. But section 5 has one provision about the sale of electric power, and section 9 has another that throws it under the Reclamation Act. They take that part of section 5 that says the funds shall be put back and covered into miscellaneous receipts so that it does not get into the reclamation fund, but use section 9 to say that the rates must be sufficient to pay for subsequent irrigation.

That results in a 4- or 5-mill rate; where if you were only seeking to pay for the power——

Senator O'MAHONEY (interposing). Well, of course, feasible irrigation was what was understood.

Senator ANDERSON. It is not so understood now, apparently.

Senator O'MAHONEY. Of course, I know every bureau wants to expand its activities.

Senator CASE. Senator O'Mahoney, do you recall the reason for this language in section 5:

> The Secretary of the Interior is authorized, from funds to be appropriated by the Congress, to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at such projects available in wholesale quantities——

and so forth?

My recollection is that there was a Bailey amendment, which would have required that the power be sold only at the dam site, and this authorized the Bureau of Reclamation to construct transmission lines, but only such transmission lines as were necessary.

Senator O'MAHONEY. The Bailey amendment was not adopted.

Senator CASE. It was not adopted. That is right.

Senator O'MAHONEY. And this was the policy that was decided upon.

Senator CASE. Now, would you consider that that sentence was intended to apply to the projects in the Missouri River program?

Senator O'MAHONEY. Well, I have not read the record recently, and I would prefer to reserve my judgment. This I do know, and that is that there has been a constant battle over the length to which the Government may go in making available the power resources which it develops. And attempts have been made to hamper the Government. Attempts have been made to expand the powers of the Government. And as a former member of the Appropriations Committee, I know that many a legislative provision has come into the Senate and passed into law on an appropriation bill.

Senator CASE. I think you gave a very good answer. I really was not intending to trap you. I was trying, however, to get the benefit of your personal connection with a lot of the history of this legislation.

I was going to ask that question of the legal representatives, or the gentlemen from the Solicitor's Office of the Department of the Interior. I want to ask them too if they regard the Missouri River projects as bound by that language on the construction of transmission lines.

Mr. WEINBERG. No, sir. We do not.

Senator O'MAHONEY. I thought there was some additional law here.

Mr. WEINBERG. The reclamation law, Senator.

Senator ANDERSON. Section 5 has no bearing, then.

Mr. WEINREBG. Not in the Missouri River Basin, Senator.

Senator CASE. He has to say that to be consistent in his other statement that section 5 does not apply to the Missouri River Basin.

Mr. WEINBERG. Sometimes it would be nice to quote Emerson's dictum about consistency being the hobgoblin, but this is one occasion when we are consistent on the view that section 5 does not apply in the Missouri River Basin.

Senator CASE. Now, that is interesting, because I think it has been generally assumed through the area that the only transmission lines that the Secretary of the Interior could construct in the Missouri River program were these as described in that sentence of section 5.

But, of course, if you deny the application of section 5 altogether, then you are consistent.

Mr. WEINBERG. Senator, the Bureau of Reclamation and the Department come before the Appropriations Committees and justify their requests for transmission lines in the Missouri River Basin in the same manner and in the same fashion as they do in the Central Valley and in any other area in which the Bureau of Reclamation operates through the marketing of power.

Senator CASE. And you think that if the Bureau of Reclamation came before the Appropriations Committee and asked for the building of transmission lines to carry power to consumers, which would be over and beyond that necessary to make the power available in wholesale quantities, it would be legally within its rights?

Mr. WEINBERG. This is controlled by the Keating amendment, Senator, to the Bureau's portion of the departmental appropriation act, which is carried annually, and which in effect precludes the construction of any transmission lines in areas covered by wheeling contracts unless wheeling over privately constructed lines is not available.

Senator CASE. When was the Keating amendment adopted?

Mr. WEINBERG. I will have to rely on Mr. Lineweaver.

Mr. LINEWEAVER. About 1948 or 1950.

Senator CASE. Then it was subsequent to this. Between 1945 and 1948 you would not have been bound by it.

Mr. WEINBERG. That is right. There was very little construction of transmission lines in the Missouri Basin between 1945 and 1948, which was at the outset, really, of the construction program.

Senator CASE. What is the basic provision in the Federal reclamation laws, then, with respect to the sale of power to cooperatives and public bodies?

Mr. WEINBERG. Section 9 (c) of the Reclamation Project Act of 1939, Senator.

Senator CASE. Is that substantially as it appears in section 5?

Mr. WEINBERG. No.

Senator CASE. Would you read it for the record?

Mr. WEINBERG. Yes; I would be glad to.

I am reading from section 9 (c) of the Reclamation Project Act of 1939:

> Any sale of electric power or lease of power privileges, made by the Secretary in connection with the operation of any project or division of a project, shall be for such periods, not to exceed forty years, and at such rates as in his judgment will produce power revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost, interest on an appropriate share of the construction investment at not less than 3 per centum per annum, and such other fixed charges as the Secretary deems proper: *Provided further*, That in said sales or leases preference shall be given to municipalities and other public corporations or agencies; and also to cooperatives and other nonprofit organizations financed in whole or in part by loans made pursuant to the Rural Electrification Act of 1936 and any amendments thereof. Nothing in the subsection shall apply to provisions in existing contracts, made pursuant to law, for the use of power and miscellaneous revenues of a project for the benefit of users of water from such project. The provisions of this subsection respecting the terms of sales of electric power and leases of power privileges shall be in addition and alternative to any authority in existing laws relating to particular projects. No contract relating to municipal water supply or miscellaneous purposes or to electric power or power privileges shall be made unless, in the judgment of the Secretary, it will not impair the efficiency of the project for irrigation purposes.

Senator CASE. Mr. Chairman, the section 5 sentence reads:

> preference in the sale of such power energy shall be given to public bodies and cooperatives.

Mr. WEINBERG. Oh, Senator Case, excuse me. If you were asking about the particular sentence, yes; there is an almost identical provision in the reclamation law.

Senator CASE. Yes; although the reclamation law, I think, is a little more specific.

Mr. WEINBERG. Yes; it refers to co-ops.

Senator CASE. And perhaps more comprehensive.

Mr. WEINBERG. Yes. I am sorry. I misunderstood your question, Senator.

Senator CASE. I just wanted to make the record clear here.

Mr. WEINBERG. Yes, there is that preference provision in reclamation law.

Senator CASE. There is that preference in reclamation law. And it is your contention that the preference provision which would apply to the projects developed under the Missouri River program is that section which you have read rather than this sentence in section 5 of the 1944 act?

Mr. WEINBERG. That has been the Department's position.

Senator ANDERSON. This does not say anything about having to recover the funds that the irrigators have paid, does it?

Mr. WEINBERG. This is found in section 9 (a), which must be read together with 9 (c), and reclamation law has from the beginning been such as to require that all costs, except those made specifically nonreimbursable such as flood control and navigation, must be returned, or the project cannot be constructed. And it is on that basis, Senator Anderson, that the Department premised its whole report on the Missouri River Basin. It is on that basis that the Department is proceeding with the expenditure of millions of dollars annually in the

construction of facilities in the Missouri River Basin today. It is on the basis that all of the irrigation costs will be returned in part by the repayment from water users, and in part by the power revenues, unless the Congress wishes to approve a direct nonreimbursable for the irrigation.

In the absence of that, the only basis upon which the Department can undertake an irrigation development is on the basis of full return of all of the irrigation costs through repayments by the water users and the balance from power or municipal water revenues.

Senator ANDERSON. I was trying to find the legal basis for a statement I have already read a couple of times. And again the witness went on to say "I have seen references and particular wording which to me sometimes infer that it is only power costs."

Where do you develop the theory? You say that reclamation costs have to be repaid. Supposing there are no reclamation projects that are approved. When you have approved the plan, you have approved the $400 million that was going to be repaid for reclamation. Now you have it up to $2½ billion or $2¼ billion. Suppose you made it $10 billion, by looking at the possibility of running tunnels up against the Rockies and irrigating everything east of the Rockies from that Missouri River water, and it got up to $10 billion. Do the power rates to the users in Iowa, the Dakotas, Montana, have to be hiked up to 15 mills or some other figure to take care of this? How do you draw the line?

Mr. WEINBERG. Let me put it this way, Senator. In the plans that were approved in 1944—and then there were additional authorizations in the 1946 Flood Control Act as well as in the 1950 Flood Control Act, going to the irrigation developments to be undertaken—certain irrigation units were authorized.

Senator ANDERSON. Were they? Where?

Mr. WEINBERG. Pardon.

They are set forth in Senate Document 191. There was a limit on appropriations, Senator, of $200 million, to get started. That was later raised, in the 1946 act, I think, by another $200 million, or $150 million, and in the 1950 act there was a further increase in the amount authorized to be appropriated, and it went to the entire plan and not merely to the initial stages.

Senator CASE. And in the omnibus flood-control bill which passed the Senate this session, an additional $200 million for each side, $200 million for the engineers and $200 million for the Bureau; that is, to prosecute the works as authorized back here.

Senator ANDERSON. Where are the irrigation projects?

Senator CASE. They are scattered somewhat. In the basic authorization, or in the basic plan, the projects were put into three classes, as I recall, the irrigation projects were. There was a class A, B, and C. "A" were those ready for construction?

Mr. WEINBERG. Yes, Senator Case. I think in the 1946 or 1950 act, they removed the limitation that restricted appropriations to the initial phase, so that now the appropriations are available to any unit in any of the three stages. But as Mr. Bradley pointed out, before funds are actually requested, there is another review from the standpoint of whether the project is still feasible under the circumstances that then prevail.

Senator CASE. Currently, for example, the largest of the irrigation projects that we know about, South Dakota, was that for the James River unit of the Oahe project, which at one time was envisioned for 750,000 acres and now has been shifted considerably to the northeast. And whether, if developed, it would be 750,000 acres or something less, nobody knows today.

Mr. WEINBERG. That is correct. It is being reviewed.

Senator CASE. So that you have a ghost irrigation project, so to speak, or an anticipated project, which has not been really born yet, but the possible costs of which you take into consideration in determining the amount of charges for power.

Senator ANDERSON. Will you answer this for me, here.

Do you understand the language in 9 (c) that says:

Subject to the basinwide findings and recommendations regarding the benefits, the allocations of costs, and the repayments by water users, made in said House and Senate documents, the reclamation and power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the Federal Reclamation laws, except—

do you regard that as approval of all this long list of irrigation projects by the Congress?

Mr. WEINBERG. Yes; as amplified, Senator Anderson, in 1946 and 1950.

Senator ANDERSON. Three million and a third acres were approved just in blank.

Senator CASE. Initially, however, in those three stages, those that were ready for construction, those that were under planning, and those that were under investigation. But subsequently——

Senator ANDERSON. They do not have to come back to the Congress with any plans or specifications or anything.

Mr. WEINBERG. So long as they are the same essential development as that envisioned in the authorization, that is correct, Senator.

Senator ANDERSON. The authorization. Well, the authorization started out to be $400 million and went to $2¼ billion. You mean you have authority to spend $2¼ billion?

Mr. WEINBERG. I was speaking to the physical features. As to how much we have authority to spend, there is an overall limit on the total amount authorized to be appropriated, which is now $550 million, and another $200 million is being carried in the pending flood-control bill, which will bring the amount authorized to be spent on the prosecution of the total plan by the Bureau of Reclamation to some $700 million.

Senator ANDERSON. How much of that has been spent?

Mr. WEINBERG. I would have to defer to Mr. Bradley on that.

Mr. BRADLEY. Mr. Chairman, approximately $450 million to $475 million.

(NOTE.—The Bureau of Reclamation accounts show accrued expenditures of $456,847,371 as of March 31, 1957.)

Senator ANDERSON. On irrigation work?

Mr. BRADLEY. On works of a multiple purpose character including irrigaiton undertaken by the Secretary of Interior through the Bureau of Reclamation.

Mr. LINEWEAVER. That includes transmission lines.

Mr. BRADLEY. That includes transmission lines; yes, sir.

Senator CASE. Mr. Chairman, when we were considering the omnibus flood control bill in public works this year, there was a paragraph in there which called for adding $200 million to the prior authorizations for the Department of Interior. We had no table or anything to indicate to what that $200 million worth of authorizations would be applied. I asked for such a table. We had a considerable hearing on that one day, and you will find in the back part of the hearings on the omnibus bill a revised table which indicates where they expected to apply funds that might be appropriated under that additional $200 million authorization. It lists projects which had been completed—I think projects which were under construction and projects which were being surveyed. Or at least they had a lump-sum item for the survey.

Mr. LINEWEAVER. Mr. Chairman, I think with respect to further clarification on your question I should add: Where there is a departure from the description in Senate Document 191, it has been found necessary to come back to the Congress for a reauthorization, or authorization, as in the case of Farwell and Ainsworth in Nebraska, and Glendo.

Senator ANDERSON. Yes. I can understand; as to those we have approved.

Senator CASE. Those represented a substantial modification of the plan envisioned for them in the Sloan report on which you have your hand.

Senator ANDERSON. I am just a little surprised that 3 or 4 million acres has been approved without putting in a few of the riders put on the others—that you cannot grow crops for 10 years, and so on. You had better start watching these. Is there any regulation on it?

Mr. LINEWEAVER. No, no regulation, except feasibility according to accepted standards.

Senator ANDERSON. Why did we put that on all of the other reclamation laws?

Mr. LINEWEAVER. We have just started that in the last few years.

Senator CASE. Any limitations in effect as of December 22, 1944 would be applicable under this paragraph (c), because they would be actually amendatory of the 1902 act, or supplementary thereto.

Senator ANDERSON. Go ahead.

Mr. WEINBERG. In the report of the Board of Review to the Commissioner on the Interior Department portion of the Missouri Basin plan, I would like to refer to paragraph 7, which appears at page 11 of Senate Document 191. There, the Board of Review, which was an agency within the Bureau of Reclamation set up to review the plan as developed by Mr. Sloan, stated:

> The agency with primary interest in the dominant function of any feature proposed in the plan should construct and operate that feature, giving full recognition in the design, construction, and operation, to the needs of other agencies with minor interests. All reservoirs where flood control and navigation are dominant should be operated by the Corps of Engineers, and where the flood control and navigation functions are minor, the reservoir should be operated in accordance with regulations of the Corps so far as flood control and navigation are concerned. All irrigation features should be operated by the Bureau of Reclamation or its agents. All reservoirs in which irrigation, restoration of surface or ground water, or power, is dominant, should be operated by the Bureau of Reclamation. Where these functions are minor the reservoirs should be operated

under regulations of the Bureau of Reclamation insofar as such functions are concerned. * * * The Bureau of Reclamation should construct and operate all power-transmission facilities and should have the responsibility for the disposal of the power generated.

I would like further to read paragraph 9 of the report of the Board of Review, which appears at page 11 of Senate Document 191:

The average unit costs of power and energy for the power developments described in the report—

and that includes the Army developments as well as those to be constructed by the Bureau of Reclamation.

Senator CASE. Now, why do you say that?

Mr. WEINBERG. Because that was part and parcel of the whole plan. It is demonstrated by tabulations, to which I will come, Senator.

Senator CASE. And you are reading now from the Senate document, which was the Bureau of Reclamation report.

Mr. WEINBERG. Yes. That is right.

Senator ANDERSON. What page is that from?

Mr. WEINBERG. Page 11, Senator Anderson, bottom of the page, paragraph 9.

Senator CASE. Can a one-sided statement in the Bureau of Reclamation report, which is the Senate document, be binding upon the Army engineer structures?

Mr. WEINBERG. The Congress approved both plans. The Army report did not deal with these matters, Senator. The Department of the Interior report dealt with them in this fashion. It is this that makes the construction of the irrigation developments possible, while meeting requirements of the reclamation law, in the absence of a provision for direct subsidy by nonreimbursable appropriations.

That, we contend, is at the heart of the Interior Department report and plan.

Senator CASE. Did the Pick report, as embraced in House Document 475, make no provision for the allocation of charges or the determination of rates?

Mr. WEINBERG. Not substantially, Senator.

If I may complete the reading of paragraph 9:

The average unit costs of power and energy for the power developments described in the report will be such as to accomplish a repayment of the construction costs of power development within a reasonable period of years and, in addition, will permit substantial contributions from power revenues to assist in the repayment of other project features as well as providing low-cost power for irrigation pumping purposes.

Senator ANDERSON. You do not go straight through the one report, do you? You have to take one report and go back.

Mr. WEINBERG. All together, these memorandums accumulatively comprise the Department report, which is Senate Document 191.

I would like to read recommendation (c), at page 16, of Senate Document 191:

That the Bureau of Reclamation under the direction of the Secretary of the Interior make all arrangements for the sale and distribution of electric energy generated at all hydroelectric developments hereafter constructed by any Federal agency within the basin as defined in the report, and be authorized to construct, operate, maintain, and improve such electric transmission lines and substations as it finds necessary or desirable in connection therewith.

I would like to refer to the statements contained on page 17 of Senate Document 191, and particularly the paragraph beginning at the bottom of page 17, which, after discussing both the Bureau and the corps plans, said:

> This basinwide plan provides for a number of reservoirs on the upper reaches of the Missouri River and its tributaries, for the purpose of storing water, and releasing it during periods of low flow. Such reservoirs will contribute to flood control not only on the lower river but at all points from the mouth of the river to the reservoir sites; they will aid navigation on the lower river by reducing flood damage to navigation works and by increasing the dry-season flow; they will enlarge the supply of water for irrigation; and they will make practicable the generation of electric energy at many places.

Senator ANDERSON. That does not have much to say about the market, does it?

Mr. WEINBERG. All of these things treat of the entire development, the Army projects as well as the Interior projects, as parts of an overall plan.

Senator ANDERSON. I thought 191 was part of the Army plan. I thought 191 was different. I thought it was 247 that was the consolidated plan.

Mr. WEINBERG. Yes. I was referring to Senate Document 191.

Senator ANDERSON. You read from the bottom of page 17, did you not?

Mr. WEINBERG. Yes, from the bottom of page 17.

Senator ANDERSON. That does not tie in the Army plan, does it?

Mr. WEINBERG. Yes. They were speaking there of all of the developments in the basin.

Let me read from the preceding paragraph on page 17:

> Incorporates the Corps of Engineers' proposed plans for flood control.

and at other places in the plan similar indications are given. The reasoning was that the corps should construct these developments that are primarily for navigation and flood control, but that the whole development, the entire complex of the projects, be considered as one overall plan.

Senator ANDERSON. Why did they need 247, then?

Mr. WEINBERG. Because there was a disagreement between the two departments as to some of the physical features. For example, there was a disagreement concerning the role of Garrison.

Senator ANDERSON. How do you take this and tie it into the Army for a grant, when this was competitive with the Army program?

Mr. WEINBERG. This was cited, Senator, to the point that whatever the agreement was upon physical features, when agreement was achieved the entire program was to be operated in terms of an overall comprehensive development.

Senator ANDERSON. I merely point out that you are quoting from what might be termed a competitive document, in order to tie it into the document that it was competing with, and say "Therefore we should use what is in the document it is competing with." That makes it a little hard to follow.

Mr. WEINBERG. No. In terms of the plans for the sale of power and the payout of irrigation costs, it is the Department's position, that these were embraced in the authorization in 9 (c) when it referred

to the plans to be undertaken by the Department of the Interior, in accordance with the basinwide allocations and benefits.

Senator ANDERSON. Just so I get this straight in my own mind again, it was your contention that this language from the Flood Control Act of 1944 authorized $4 or $5 billion worth of work on the Missouri River Basin.

Mr. WEINBERG. Well, the initial appropriation was limited to $200 million.

Senator ANDERSON. We both recognize that there would have to be an authorization and an appropriation. That was not the question, was it? The question was: Is it your assertion that this section of the Flood Control Act authorized $5 billion worth of work on the Missouri River Basin?

Mr. WEINBERG. Yes, with this limitation, Senator. The original recommendation for construction, for the actual initiation of construction, related to what was described as the "initial stages." In 1946, the reference to the "initial stages" was eliminated.

Senator ANDERSON. No. I am trying to get here in this pamphlet, in 247 and 191, and so forth—there are a whole list of things that might be done across the whole geography of the United States. And by setting up some method by which they could coordinate them, is it your contention that the Congress authorized $5,345 million worth of work?

Mr. WEINBERG. The Congress approved the entire plans. It authorized at that time the construction of the initial stages in accordance with the recommendations. In 1946, the limitation to the initial stage was removed.

Senator ANDERSON. In 1946 it was removed by what? By a rider on the appropriation bill?

Mr. WEINBERG. No, by a provision in either the Flood Control Act or the Rivers and Harbors Act of 1946.

Senator ANDERSON. And did that then authorize $5,345 million worth of projects?

Mr. WEINBERG. It removed the restriction on authorization and left the entire control in terms of a limitation on the amount to be appropriated.

Senator ANDERSON. Did it authorize $5,345 million?

Mr. WEINBERG. In that sense I would have to say "Yes."

Senator ANDERSON. I do not think the Congress realized it at the time.

Senator CASE. I think you would have to say that it was an open-end authorization subject to the limitation of the dollar amounts from time to time authorized.

Mr. LINEWEAVER. Subject to the allocations from specific appropriations for the Missouri River Basin project.

Senator CASE. In the basic act those last two subparagraphs have a hundred million dollars respectively for the separate agencies, and that uses the phrase "for the partial accomplishment," and each succeeding authorization has "for the partial accomplishment of" and so forth.

Mr. LINEWEAVER. Mr. Weinberg, where do you find, in the Flood Control Act, the authorization for the initial phases?

Mr. WEINBERG. In the 1944 act.

Mr. LINEWEAVER. It goes back to Senate Document 191.

Mr. WEINBERG. Yes, paragraph 23, and the recommendations immediately following that paragraph at pages 15 and 16 of Senate Document 191.

Senator ANDERSON. I am interested, because we spent years and fought, bled, and died, because everybody thought we had to spell out everything that went into the Colorado River legislation, and it was going to cost a billion dollars, and here you say that by a little simple language and a few innocent words we authorized $5,345 million worth of projects.

I wonder if the Congress knew it, and if so what the Congress is going to do about it.

Mr. LINEWEAVER. I may state this, Mr. Chairman: At each subsequent appropriation hearing for years, the Bureau of Reclamation has laid out the estimated increased costs each year, and kept the Congress informed, through the Appropriations Committees, of the increased cost from time to time, which jumped from a billion and so up to now more than $5 billion.

Senator ANDERSON. My interest in it is not to try to stop the building of these dams or reservoirs along the river in the slightest. But I can hardly believe that the Congress has authorized each and every one of these reclamation projects without a look at a single one of them, without any feasibility reports at any time by anybody, and that thereby, not having done it, they are authorized just the same as every irrigation project in the United States is authorized, and therefore the power rates must be built up to include $2¼ billion worth of these projects that you look forward to hopefully, but not a one of which has ever been before the Congress for approval.

I do not believe the Congress thought that in writing that language it was giving you a blank check to go ahead with a project where the costs are $1,300 an acre. And if you have heard anything about what some of the people from some of the dry-farming States, such as Illinois, said about bananas on Pike's Peak at $1,200 an acre, how much are they on Horny Peak at $1,300 an acre? I just do not believe they went quite that far.

Mr. WEINBERG. I think Senator Case put it quite accurately, Senator, when he said that what we have here is an open-end authorization. It is subject to control in the appropriation process. The Secretary and the Commissioner come before the Appropriations Committees each year, and they justify their requests. They make continuing economic analyses of these matters. And in that fashion the Congress exercises its control.

Senator ANDERSON. Have they approved the irrigation projects themselves, the construction of the ditches and laterals, for any of these irrigation projects under this?

Mr. WEINBERG. When you say "they"——

Senator ANDERSON. The Congress.

Mr. WEINBERG. Yes.

Senator ANDERSON. When?

Mr. WEINBERG. By its action in 1944, 1946, and 1950.

Senator ANDERSON. What were in the initial stages that were recommended?

Mr. WEINBERG. Paragraph 23, page 15, of Senate Document 191.

Senator ANDERSON. Why, you cannot just take that one. You have got to take all of them. All the initial stages.

Mr. WEINBERG. Those are the initial stages.

Senator CASE. That is described as the initial stage; the recommendation for the initial stage.

Senator ANDERSON. In Senate Document 191 alone?

Senator CASE. In 191 alone.

Senator ANDERSON. But you have two other documents that you are citing here. He does not confine it to 191.

Senator CASE. Mr. Chairman, General Reybold, in his report transmitting the report of the Army engineers, which letter I suppose is technically the thing that was approved in the authorization for the Corps of Engineers, said, at paragraph 14:

> This comprehensive plan should be approved now, and at least the first phase of development to be authorized in the same manner as existing law for large river basins. Approval at this time will permit details to be worked out through cooperation with all other agencies concerned and will enable working plans to be prepared, so that construction can be initiated expeditiously and prosecuted with efficiency and dispatch throughout the postwar period.

I think that it was inherent in the plan that several main-stem reservoirs were to be authorized at one time in order that there could be a coordinated plan of operation.

Senator ANDERSON. No question about it at all.

I am talking about irrigation projects. It is the irrigation projects that are involved in this power rate.

Mr. WEINBERG. Those are the ones that are set forth in 191, Senator. The Army plan did not embrace them.

Senator CASE. I do not want to interrupt here, but there is a little different aspect. In General Reybold's letter also, at paragraph 11, he said:

> The Department—

meaning the War Department then—

> recognizes waterflow retardation, soil-erosion prevention, and production of hydroelectric power, as important parts of the Missouri Basin program. The generation of power in multipurpose projects now authorized for flood control and in those proposed in the expanded plan of development is a definite part of the recommended program. Plans for the production, transmission, and sale of hydroelectric power should be worked out with the cooperation of the Federal Power Commission. Installation of power facilities so as to meet the economic needs of the Missouri Basin should be approved from time to time by the Secretary of War upon recommendations by the Federal Power Commission and the Chief of Engineers.

Senator ANDERSON. I am not questioning these dams at all.

Senator CASE. I wanted to ask the question whether or not there is coordination now with the Federal Power Commission in the planning of the production, transmission, and the sale of hydroelectric power.

Mr. WEINBERG. I will have to defer to the technical people on that, Senator.

Mr. BRADLEY. There is in the sense that through the interagency committee the Federal Power Commission participates with the corps and the Bureau in power-marketing studies, demands, loads, and so forth.

Senator CASE. What about in the sale? Is there a coordination on the determination of rates?

Mr. BRADLEY. There is not, sir.

Senator CASE. Then the Bureau of Reclamation is the final answer under the theory of operation that you have had. The Bureau of Reclamation is the final answer as to the determination of power rates?

Mr. BRADLEY. The Secretary of the Interior, to be technical, yes. The operating agency is the Bureau, of course.

Mr. Weinberg. I would like to refer to page 23 of the Senate Document 191. The last paragraph on that page reads as follows:

> Complementing irrigation development, the construction of 17 powerplants is proposed with an aggregate installed capacity of 758,500 kilowatts. These plants will be capable of generating 3,809,200,000 kilowatt-hours of firm energy annually.

Then follows a tabulation of the powerplants, including the power developments to be undertaken by the Corps of Engineers at the main-stem dam, which list of main-stem dams was, of course, revised in the coordinating document, Senate Document 247.

Senator ANDERSON. I will bet we will get some riders on appropriation bills from here on out.

Mr. WEINBERG. I would like also to refer to the last 2 paragraphs on page 25 of Senate Document 191, which deals with the repayments that might be expected from the irrigators under reclamation law and the revenues from power, including the fact that power revenues would provide a substantial surplus applicable to other project costs in addition to returning the power costs with interest.

Senator CASE. May I say that the chairman is apparently worrying about that $1,300 an acre. The farmers in the valley, however, are worrying about them, too.

Senator ANDERSON. No; I am honestly worried about steadily piling up behind every kilowatt of energy that is sold from any of these dams the possibility that at some subsequent date you are going to be faced with $5 billion worth, and that is what these irrigation projects will probably go into—$5 billion worth of irrigation charges if you never build one of them.

Senator CASE. If you never build one. That is the question I have been trying to bring up here, that you may be making the power users pay for some ghost projects which will never even be born.

Senator ANDERSON. That is why I think this power question ought to be related to the likelihood of completing part of it.

Go ahead.

Senator CASE. There is just that one point, though. I am not sure whether you were here when I brought that out. I think perhaps Mr. Bradley ought to make that clear at this time. That is that the allocation to power has a definite period of years for payout before the power user returns are theoretically paying off the irrigation.

Mr. BRADLEY. Yes. Shall I restate that, Senator? Is that your purpose?

Senator ANDERSON. Just read it from the law.

Mr. BRADLEY. I was deferring to the lawyers as to the law.

Senator CASE. The lawyer has already said that the power costs have to be within what period of years? Forty years?

Mr. WEINBERG. No, the maximum length of contract is 40 years, Senator. There is no stipulation within the law of a period within which the power costs to be met from power revenues are to be returned.

Senator CASE. What term is the 5 mills predicated on?

Mr. BRADLEY. The 5½ mills and the other associated rates for the other classes of power are sufficient to pay out the allocation to power, which is paid out before any funds are applied from the power revenues in aid of anything other than power—it pays out in about 43 years after the time when all power is in. And all power is assumed to be in by the period starting, I believe, approximately 1970. The units come in from time to time. As each one comes in, it is picked up for repayment purposes. Power only is paid out from power revenues initially. The total power system is paid out at a point 43 years after the last power plant joins the system. Then the irrigation subsidy starts.

Senator ANDERSON. You have here "any sale of electric power or lease of power privileges made by the Secretary in connection with the operation of any project or division of project shall be for such period not to exceed 40 years." You do not mean 43, do you?

Mr. BRADLEY. Senator, if I may answer your question, it is my understanding, and I will have to yield back to the lawyers, that that term of 40 years relates to a contract and not to a repayment period.

Mr. WEINBERG. That is correct. That 40 years expression in the law does not relate to the length of the period over which the costs are to be returned from the sale of power. It refers to the maximum length of power sales contracts.

Senator ANDERSON. The costs do not have to be returned in 40 or 50 or 60?

Mr. WEINBERG. As a matter of policy, 50 years has been selected.

Senator ANDERSON. No, as a matter of law.

Mr. WEINBERG. As a matter of law, the limitation on the period is that which is dictated by the application of sound administrative judgment.

Senator ANDERSON. One hundred years, if you want?

Mr. WEINBERG. In some circumstances if that were sound policy.

Senator ANDERSON. I am not talking about the judgment factor. As a matter of law, can you make it for 100 years?

Mr. WEINBERG. Senator, the law requires the application of a judgment factor. You will not find in the reclamation law or in the Flood Control Act, or in section 5 either, for that matter, a statement of any period of years.

Senator ANDERSON. What is this 40-year business?

Mr. WEINBERG. That is the length of contract.

Senator CASE. In other words, if the judgment of the Secretary was that 50 years, being the length of time used for payout on the irrigation project, were equally a desirable period of time, it would be possible to take the power allocations and base them on a 50-year payout rather than a 43-year payout?

Mr. WEINBERG. Yes.

Senator ANDERSON. Or a 60-year payout?

Mr. WEINBERG. If that commended itself as sound administrative judgment.

Senator ANDERSON. Or a 90-year payout?

Mr. WEINBERG. Well, Senator, obviously, you reach a point where the thing becomes unreasonable.

Senator CASE. The useful life of the facility is a test.

Mr. WEINBERG. That is one test. Another test would be what action Congress might take in all circumstances.

Senator CASE. Clearly, Mr. Chairman, this is an area in which congressional action would be appropriate if the committees wanted to do something. What is the payout period now on irrigation projects? Fifty years?

Mr. WEINBERG. You mean by the water users?

Mr. FISHER. General reclamation law provides for 40 years, plus a 10-year development period.

Senator CASE. Plus a 10-year development period. In effect, 50 years.

Mr. FISHER. Fifty years. There are individual projects which have been authorized for longer payout periods.

Senator CASE. Is the life of an irrigation project greater than the life of a hydroelectric development?

Mr. FISHER. I doubt that I could answer that. I would feel quite certain that there are certain features of an irrigation project, such as flumes, siphons, and that sort of thing, that would not be. As to the main reservoirs, I would assume that it would be the same.

Senator CASE. Then it certainly would be particularly out of line if the Secretary wanted to say, "Since we allow a 10-year development period and a 40-year payout period for an irrigation project, we will base this on a 50-year payout for power." It would certainly be within the law.

Mr. FISHER. Oh, yes.

Senator ANDERSON. You say this is a contract, where this 40 years comes in.

Mr. FISHER. Yes.

Senator ANDERSON. How do you differentiate? The law says you shall make it so that it does not exceed 40 years. You say that is a contract. But the law says payout in 40 years, does it not?

Mr. WEINBERG. No.

Senator ANDERSON. What does it say—

any sale of electric power or lease of power made by the Secretary with the operation of any project * * * shall be for such periods not to exceed 40 years.

Mr. WEINBERG. You get to the repayment at such rates as in his judgment will produce the annual maintenance cost, interest, and such other fixed charges as the Secretary deems proper.

Mr. LINEWEAVER. But no repayment period of 40 or 50 years is fixed by reclamation.

Mr. WEINBERG. Not generally. There are individual projects, as you know, when the law specifies the payout period.

Senator ANDERSON. The upper Colorado River project.

Mr. WEINBERG. And Boulder Canyon is another one.

Senator ANDERSON. Because the Bureau of the Budget recommended it. But they did not want to spend $800 million on the Colorado River storage project without limitation, but they are perfectly willing to spend this money here without it.

Mr. WEINBERG. I am going to have to defer on that.

Senator ANDERSON. The actual effect of the laws now existent is that in the upper Colorado River storage project the power revenues must be such as to payout in 40 years, but in the Missouri River Valley project they can pay out in 200 years if need be.

Mr. WEINBERG. Well, it is subject to the qualification of reasonableness, Senator. Now, people will differ as to what is reasonable.

Senator ANDERSON. Where is the reasonableness in this?

Mr. WINEBERG. This is just inherent in the job that anyone has to do.

Senator ANDERSON. That may be 25 years. I do not understand the "inherent" business. There either is a legal limitation on it, or there is not.

Mr. WEINBERG. It is committed to the judgment of the Secretary. If the Secretary exercises that judgment in a way in which the Congress disagrees, then the Congress can exercise appropriate controls over him.

Senator ANDERSON. So that if there is to be any limit on how long any of these projects shall pay out, 40, 50, 60, or 75 years, it would have to be written in by the Congress specifically now.

Mr. WEINBERG. If there is to be a definite statutory limit, yes, Senator, that is correct.

Senator ANDERSON. Is that true also, then, of this question of rates being sufficient to repay it in 50 years at 3 percent interest?

Mr. WEINBERG. May I ask to what you are referring?

Senator ANDERSON. This testimony that we have: "The power investments from those costs allocated to power with 3 percent interest will be repaid in 50 years."

Mr. WEINBERG. At the bottom of page 3? Yes, that is a matter of policy.

Senator ANDERSON. What about the 3 percent?

Mr. WEINBERG. That is specified in the act.

Senator ANDERSON. Well, in the 1939 act it speaks about the sale at 3 percent.

Mr. WEINBERG. If each sale has to bear 3 percent, when you put them all together it amounts to 3 percent. In that sense, if each and every contract must return 3 percent, then they all together must return 3 percent.

Senator CASE. Mr. Chairman, it seems to me whatever the law be as far as specific requirements are concerned, if the Department accepts section 9 as giving them the authority for the projects, and giving them the guidance as to the policies to be followed, the language in paragraph (c), which says:

> Subject to the basinwide findings and recommendations regarding the benefits, the allocations of costs and the repayments by water users, made in said House and Senate documents, the reclamation and power developments to be undertaken by the Secretary—

and so forth—

> shall be governed by the Federal reclamation laws, and acts amendatory thereof or supplementary thereto—

at least, the Federal reclamation laws would be advisable as to the principles they should follow in the repayments.

Senator ANDERSON. I would also point out that it says—

rates as in his judgment will produce power revenues at least sufficient to cover an approximate share of the annual operation and maintenance cost—

and an appropriate share could be 10 percent, 20 percent, 50 percent, or 100 percent;

interest on an appropriate share of the investment—

which could be 10, 20, 30, 50, 70 percent, or any other figure. It does not say 3 percent of the cost "of an appropriate share"; whatever the Secretary thinks is appropriate.

Mr. WEINBERG. Within the limitation that he has to accomplish payout.

Senator ANDERSON. Where is that?

Mr. WEINBERG. That is inherent. Well, that is found in section 9 (a), Senator.

Senator ANDERSON. That he has to accomplish payout?

Mr. WEINBERG. Yes. All of the costs and all of the repayments must be equal, save for the allocations to nonreimbursable purposes like flood control, navigation, and fish and wildlife, which was added by an amendment to the law in 1946, unless the Congress determines otherwise in connection with any individual project authorization.

Senator ANDERSON. You think they would have said that rather than "appropriate share."

Mr. WEINBERG. This was a general statute intending to cover all reclamation projects. It is written in general terms.

Senator ANDERSON. Do you have any more of your statement?

Mr. WEINBERG. Yes. There are other provisions in Senate Document 191 to which attention might be called along the same general line of 1 overall development consisting of 2 coordinated comprehensive plans, with the power developments to be undertaken by the Department of the Interior spoken of in section 9 (c) of the 1944 Flood Control Act, including the marketing of power from the Army reservoirs and the application against irrigation costs, as well as the construction by the Bureau of Reclamation of powerplants.

But the hour grows late, and this grows tedious; so I will not cite any more.

I would like to turn now to the implementation by the Department of the provisions of the 1944 Flood Control Act in terms of its actual practice.

The first overall Missouri Basin power rates were approved by the Secretary of the Interior, on March 24, 1950, on recommendation of the then Commissioner, Michael W. Straus, who is seated in the room.

Senator ANDERSON. I am sure a very wise decision was reached. Go ahead.

Mr. WEINBERG. Those rates were premised on the principles to which I have referred; that is, they were developed under reclamation law. They applied to the sale of power from the Army reservoirs as well as from those constructed by the Bureau of Reclamation. And on that basis, with the approval of those rates, the Department undertook the negotiation and the making of power contracts.

Senator ANDERSON. Would you check that decision to see whether the then Solicitor of the Department approved the theory on which this was done?

Mr. WEINBERG. He did not.

Senator ANDERSON. And was it not somewhat unusual that against the approval of the Solicitor of the Department they went ahead and established a rate that was higher than he thought was necessary?

Mr. WEINBERG. It is unusual. But the law commits the matter to the Secretary, and this is the position that the Secretary took.

Mr. LINEWEAVER. Mr. White did not withhold his approval on the ground that the rate was higher than he thought was necessary.

Senator CASE. On what basis did he withhold the opinion?

Mr. LINEWEAVER. I am not advised. I never could find out why.

Senator ANDERSON. He felt it was not in accordance with the law. That is what he thought. He thought the sections you have been talking about had some applicability.

Senator CASE. That section 5 had some applicability.

Senator ANDERSON. Correct.

Mr. LINEWEAVER. But it was not because the rates were not high enough. It was because the general impression was that if the Federal Power Commission fixed them they would be higher.

Senator ANDERSON. My question was: Were they too high? If they were just trying to cover the terms of power investment, the rate might have been lower. The rate was fixed high enough to provide a rate sufficient for irrigation purposes, and he questioned whether that was sufficient under the approval of the law.

Mr. WEINBERG. He concluded that in its enactment of section 9 the Congress had not acted with sufficient clarity, and that therefore, in Mr. White's judgment, the power revenues from the Army power developments could not be applied against any irrigation costs for any project in the Missouri River Basin.

Secretary Chapman did not agree with that position.

Senator CASE. Did Mr. White state that position in writing at any time?

Mr. WEINBERG. There are memorandums in the Department.

Senator CASE. Mr. Chairman, I think we ought to ask for a copy of that memorandum.

Senator ANDERSON. I would be very happy to do so, and it will be put in the record.

(See p. 389.)

Mr. LINEWEAVER. You will want the copy of the Secretary's order finally in the record, too?

Senator ANDERSON. Yes.

Mr. WEINBERG. I would like to offer this and the rate study attached for the record, if I may.

Senator ANDERSON. I would like to ask the staff to go through this. I am a little touchy on what we have put in the record in print. I would like not to print any more than is necessary. But I would like also to make sure that the representatives of the office do not feel that we just put in a one-sided viewpoint of it. So if you will clear with him before you actually decide——

Mr. LINEWEAVER. I do not think it is actually necessary to put the rate study in there.

Senator ANDERSON. No. I do not, either.

Senator CASE. Mr. Chairman, the Commissioner's letter of March 10, 1950, is just a little over two pages. I think that letter should go in, but not the report of the study.

Senator ANDERSON. That is the Commissioner's letter. But is that the Solicitor's letter?

Mr. WEINBERG. No. That is the Commissioner's recommendation and the Secretary's approval.

Senator CASE. And I have previously asked for the Solicitor's memorandum.

Senator ANDERSON. Let the Solicitor's memorandum accompany that.

(See p. 401.)

Mr. WEINBERG. Do you intend to address a letter to the Secretary, Senator, and request that?

Senator ANDERSON, Well, if it has to be done that way, yes; but I would rather if you would take this request back to him, and if he decides he wants a written letter, I will be very happy to see that he gets one.

Mr. WEINBERG. I will be very happy to relay the request. You understand that these documents are not in my custody, and I am not authorized to release them.

Senator ANDERSON. Secretary Seaton has many friends on this Hill and we all like him very much, and I think he understands we would not be asking for something inappropriate.

Mr. WEINBERG. I am sure the Secretary will appreciate those kind words.

It is on the basis of these rates, and on the basis of the conclusion that the Federal Power Commission approval was not required, that power contracting proceeded and has continued to this day. And to date approximately 185 firm-power contracts have been entered into, calling for the delivery of a total of approximately 648,000 kilowatts of power.

Now, shortly after the making of one of the early contracts, the Federal Power Commission addressed a letter, dated September 27, 1950, to Commissioner Straus, asking that the rate schedules embraced in a contract with the city of Lakota, N. Dak., be submitted for approval under section 5.

To this letter, Secretary Chapman replied on October 21, 1950, stating that, in his view, the matter was governed by section 9 (c) and not by section 5, and declining to submit the rates for approval.

Senator CASE. What did the Federal Power Commission then do?

Mr. WEINBERG. The Chairman of the Federal Power Commission wrote to the Secretary on December 1, 1950, in response to the Secretary's letter of October 21, 1950, stating that the Commission disagreed, and again requesting that the rates be filed. No further reply was made by the secretary or the Commission, and there the matter has rested so far as exchange of views between the Department and the Federal Power Commission is concerned.

Mr. LINEWEAVER. There were subsequent communications, were there not?

Mr. WEINBERG. No further communications from the Commission. However, the matter was gone into at quite some length in 1952 in the hearings before the Jones committee, which was a subcommittee of the House Committee on Public Works, set up to study civil works. And I am sure that you gentlemen will recall that the Jones committee held very extensive hearings on the whole field of water policy, allocations of costs, planning, repayments, and so on.

Both the Federal Power Commission and the Department of the Interior stated their views on this question of the applicability of section 5 to the Army power developments in the Missouri River Basin before the Jones committee. The particular page references, if you would like them for the record, are as follows.

I refer to hearings entitled "Study of Civil Works" No. 82–17, "Hearings before the Subcommittee to Study Civil Works of the Committee on Public Works, House of Representatives, 82d Congress, 2d session," part 3, covering April 30, May 2, 6, 7, 14, 15 and 16, 1952. The page references are pages 399 to 400, 447 to 448, and 504 to 506.

After hearing the matter, the Jones committee took no action on this; it made no recommendation, although it made extensive recommendations on other matters, such as the responsibility for cost allocation, and so on, but it had nothing to say on this particular issue.

Senator CASE. Do you know whether the matter has ever been referred to the Comptroller General for an opinion?

Mr. WEINBERG. No, I know it has not been referred to the Comptroller General for an opinion. The Comptroller, however, annually audits the Department's accounts, and he is acquainted with this issue.

Senator CASE. Has he ever commented on it in his annual report?

Mr. WEINBERG. Not as such. Inquiry has been made through the audit report and by letters from the auditors dealing with specific issues but not with the general question of applying power revenues from Army projects against irrigation costs in the Missouri River Basin. That the Comptroller has not questioned. However, he did question the matter of where the revenues should be deposited.

Senator ANDERSON. Did he want to put them in the reclamation fund?

Mr. WEINBERG. No; he did not. And he asked the Department what its views were.

Senator ANDERSON. We would have been happy to encourage him.

Mr. WEINBERG. He thought that they should be deposited in the general fund, and he referred to section 5. And the Department replied to the questions raised by the head of the Audit Division of the General Accounting Office. It would not be correct to say Mr. Campbell himself raised this question, although the question was raised in the audit report which he presented to the Congress.

Senator CASE. When was it raised?

Mr. WEINBERG. Oh, it was raised within the last couple of years.

Mr. LINEWEAVER. Several times. It has been raised in several reports.

Mr. WEINBERG. Yes.

Mr. LINEWEAVER. Were there ever, subsequent to this exchange of correspondence between Secretary Chapman and Mr. Wallgren, the Chairman of the Federal Power Commission, in recent years any communication with the Federal Power Commission? Have you raised it again?

Mr. WEINBERG. No, sir.

Mr. LINEWEAVER. They have not?

Mr. WEINBERG. They have not.

Mr. LINEWEAVER. You think that they were satisfied with it?

Mr. WEINBERG. I draw no inferences at all, Mr. Lineweaver. I cannot speak for the Federal Power Commission.

Senator CASE. I have been handed the audit report to the Congress of the United States by the Comptroller General, which was transmitted to the chairman of the committee on Interior and Insular Affairs by Mr. Campbell under date of December 3, 1956. The report is headed "Missouri River Basin Water Resources Development Program, Corps of Engineers, Civil Functions, Department of the Army, and Bureau of Reclamation, Department of the Interior, for fiscal year ended June 30, 1955." At page 14 of the report, under paragraph 12, I read this recommendation:

> We are recommending that the Chief of Engineers and the Secretary of the Interior jointly establish comparable accounting and financial policies and apply practices thereunder uniformly and consistently on (1) allocations to power and nonpower purposes of joint costs and expenses of operating and maintaining multiple-purpose projects; (2) provisions for depreciation of plant and service and allocation of the provisions on the multiple-service plant to purposes; (3) computation and recording of interest on the Federal investment in commercial power and municipal and industrial water-supply facilities.
>
> The establishment jointly of comparable policies and effective application of them by each agency is necessary before financial statements of the Government's water-resource operations can be fairly presented. General agreement has been reached between the Department of the Interior, Corps of Engineers, Federal Power Commission, and General Accounting Office on the use of simple interest during construction and the proportionate method of accounting for the operation of joint facilities on multiple-purpose projects.
>
> We are recommending also that statements be designated specifically to show the status of repayment of the Federal investment based on memorandum records for scheduled repayment requirements for theoretical return of funds which would be sufficient to repay the Federal investment within the administratively determined repayment period.

Now, I recognize that this report was probably made available late in 1956. What steps, if any, have been taken by the Corps of Engineers, or by the Chief of Engineers and the Secretary of the Interior, jointly, to establish comparable accounting and financial policies as recommended by the Comptroller General?

Mr. WEINBERG. I do not know, Senator, but I will undertake to develop the information for the record. I know that the Department has had correspondence with the General Accounting Office on the report.

(See p. 358.)

Senator CASE. I notice at one point you made some reference to the Comptroller General's inquiry, and it related to section 5.

Mr. WEINBERG. Yes.

Senator CASE. Did the Comptroller General indicate that he thought section 5 should be applicable?

Mr. WEINBERG. He thought that revenues should be deposited in the general fund because of section 5, and at other points in the report he recognized that the Department's position was that section 5 did not apply.

The Department has responded to the request of the Audit Division of the General Accounting Office for its views on that point, and the response was along the lines that I indicated earlier in my testimony. And I would be glad to obtain a copy of that letter for the record if it is available.

The position was taken that the reclamation laws governed; that, since the Army plants were not constructed by the Bureau of Reclamation, the Hayden-O'Mahoney amendment did not apply, and, there-

fore, under general provisions of law requiring the deposit of all funds in the general fund of the Treasury in the absence of any other specific provision, an appropriate allocation of revenue has to be made to the Army powerplants, and the sum represented thereby must be deposited in the general fund.

Mr. LINEWEAVER. That does not cover the transmission.

Mr. WEINBERG. Well, you do not receive revenue separately from the powerplants and from the transmission.

The Department has in mind allocating a portion of the revenues from the sale of power to cover the costs of the Department of the Army that are allocated to power.

Mr. LINEWEAVER. It will be a proportionate amount. It will not follow each kilowatt?

Mr. WEINBERG. That is correct.

Senator CASE. Now, can you supply for the record the exchange of correspondence between the Secretary of the Interior and the Comptroller General with reference to the application of section 5 or any portion thereof to which we have referred?

Mr. WEINBERG. Yes.

Mr. LINEWEAVER. And also if there is any correspondence with the Federal Power Commission subsequently.

Mr. WEINBERG. If there is any, I will ascertain if it is available, although I know of none.

(See p. 358.)

Senator CASE. On page 130 of the Comptroller General's report on this Missouri River Basin water resource development program for the fiscal year ended June 30, 1955, the Comptroller says this, under the heading of "Recommendations":

> * * * We recommend that the Chief of Engineers and the Secretary of the Interior adopt a policy for recording interest on the Federal investment based on the principles set forth in the following paragraphs.
>
> The interest cost for each year should be determined on the net Federal investment in the project applicable to power or municipal water supply purposes at the beginning of the year and on the accrued Federal expenditures, plus transfers of property from other Federal agencies, less any funds returned from the United States Treasury for the fiscal year. Computations of interest should be based on the average monthly expenditures, plus property transfers for the month, less any funds returned to the Treasury. During the construction period, interest should not be computed on a compound basis.
>
> The rate of interest should be based on the long-term borrowing rate for several years and determined in consultation with the Secretary of the Treasury unless otherwise provided by law.
>
> Interest applicable to the investment in facilities to the in-service States shall be charged to construction cost as interest during construction, and interest cost thereafter should be classified as an operating expense.

Now, do you know whether this recommendation by the Comptroller General would involve a change in determining the interest rate as employed by the Bureau of Reclamation in fixing the charges or the rates heretofore?

Mr. WEINBERG. I do not know, Senator Case.

Senator CASE. Do you know whether any change has been made since this recommendation was made?

Mr. WEINBERG. I do not.

Senator CASE. Could you listen to two sentences? The Comptroller's report also said, at page 4 [reads from p. 5 of the report].

Senator CASE. It appears to me that the Comptroller is saying there that he thinks the power rates can be properly established only when you have got all the costs in, but must be established in accordance with section 5.

Senator ANDERSON. He, in other words, agrees with Mr. White, when he was Solicitor of the Department of Interior. That is what some of us have been trying to say.

Of course, whenever you get into this, you get into the possibility that the rates can move up and down. We found that out in connection with some natural gas rates the other way. Everybody wanted them fixed. When they got them fixed they wished to the Lord they had not had them fixed. So you never know.

I do want to say, before Senator Case finishes his questioning, if he has not finished, that we do appreciate your appearance here and the way in which you have been cross-examined does not indicate that we do not think that you have tried hard to give us a good presentation, but it is the only way I know to get down to what may be insights and new questions.

Did you have additional material you wanted to submit?

Mr. WEINBERG. I did not have.

My main problem on the notice we had was to gather the material, and I did not have time to prepare a formal statement. I have been speaking from an outline.

Senator ANDERSON. Would you submit for the record an additional formal statement, which you would have time to prepare formally? I would be glad to hear you on through.

Mr. WEINBERG. Well, Senator, I would appreciate very much the opportunity to file a formal statement. I was about to inquire of the Chair his pleasure as to my presence here, because if we are to continue for much longer, I have car pool arrangements that I have to make.

(See p. 344.)

Senator ANDERSON. I think you had better get to your car pool, and we had better get to this morning's mail.

Thank you very much.

Senator CASE. I would just like to second what the Chairman has said with respect to appreciating the testimony, and it is true that we have been asking a lot of questions here, but we are trying to find our way.

And I also recognize that the Department has had a practical problem of trying to find some rule to follow where the Congress did not spell it out in the first place.

Mr. WEINBERG. Well, I have attempted to explain the Department's position.

Senator ANDERSON. Let me just say that we will make available to you the transcript of what we went through this afternoon. And if you will study it and try to amplify those points and clear them up, it will be deeply appreciated by the members of the committee.

Mr. WEINBERG. I thank you, sir.

(Mr. Weinberg subsequently submitted the following:)

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SOLICITOR,
Washington, D. C., May 16, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: In accordance with the invitation tendered me by Senator Anderson, temporarily presiding, at the conclusion of my oral testimony at the May 3 joint hearing of the Missouri Basin problems held by the Committee on Interior and Insular Affairs and the Committee on Public Works, I enclose for inclusion in the record a prepared statement which continues and supplements my oral testimony.

Also enclosed, as requested by the committee during the course of my testimony are the following documents, which are transmitted pursuant to appropriate departmental authorization:

(1) Letter from Administrative Assistant Secretary D. Otis Beasley dated November 26, 1956, to Mr. Adolph T. Samuelson, Director, Civil Accounting and Auditing Division, General Accounting Office, together with enclosure thereto.

(2) Letter from Administrative Assistant Secretary Beasley dated April 22, 1957, to Mr. Samuelson.

(3) Opinion M-36022, dated January 18, 1950, by Solicitor Mastin G. White, subject Power Rates—Missouri River Basin Project.

(4) Memorandum dated September 2, 1949, from William J. Burke, regional counsel, Bureau of Reclamation, Billings, Mont., to Chief Counsel, Bureau of Reclamation, Washington, D. C., subject Establishment of Power Rates—Missouri River Basin Project, enclosing memorandum of identical date by Mr. Burke re: Establishment of power rates—Missouri River Basin project.

(5) Memorandum from Assistant Chief Counsel Schwab, dated September 30, 1946, subject Use of Revenues Received From the Distribution and Disposal of Power From Dams Constructed by the Corps of Engineers.

The last two memoranda above itemized are enclosed along with Solicitor White's memorandum of January 8, 1950, so that the committees may have in the record copies of all of the divergent legal opinions prepared within the Department on the matter dealt with.

I take this occasion to express to the committees my appreciation of the opportunity to complete the presentation of the Department's position through the medium of the prepared statement enclosed.

Sincerely yours,

EDWARD WEINBERG, *Assistant Solicitor.*

MAY 16, 1957.

PREPARED STATEMENT OF EDWARD WEINBERG SUPPLEMENTING AND CONTINUING ORAL TESTIMONY GIVEN ON MAY 3, 1957

This prepared statement is submitted in response to the invitation kindly tendered me at the conclusion of the hearing on May 3 by Senator Anderson, temporarily presiding, to submit an additional formal statement for the record. This prepared statement does not repeat the material covered by my oral testimony. Rather, it represents a continuation of my analysis from the point where oral testimony was concluded.

SUMMARY OF ISSUES INVOLVED

At the outset of my oral testimony I stated that the issue of application against irrigation costs of power revenues allocable to power generated at hydroelectric projects of the Corps of Engineers constructed pursuant to the authority of section 9 of the Flood Control Act of 1944 involves three fields of inquiry. The first of these concerns the meaning to be accorded the reference in section 9 (c) of the Flood Control Act of 1944 to "the reclamation and power developments to be undertaken by the Secretary of the Interior" in the light of the actual scope of House Document 475 and Senate Document 191, 78th Congress, as revised and coordinated by Senate Document 247, 78th Congress. The second inquiry is concerned with the implementation or the administration of the statute by the Department of the Interior following its enactment. The third field of inquiry

is concerned with congressional recognition and acceptance of the Department's administration of the statute.

The first field of inquiry was covered by my oral testimony.

DEPARTMENTAL PRACTICE IN ADMINISTRATION OF MISSOURI RIVER BASIN PROJECT

At the conclusion of the hearing on May 3, I had been discussing the Department's practices following the enactment of the Flood Control Act of 1944. I had in that connection discussed such matters as the approval of Missouri River Basin power rates on March 24, 1950; the Secretary's exchange of correspondence with the Federal Power Commission late in 1950 in which he declined to submit rate schedules to that Commission for approval; and the testimony before the Jones committee in 1952. I had, as the meeting adjourned, reached the recent statement by the Department to the Audit Division of the General Accounting Office. This statement consists of a letter dated April 22, 1957, from Administrative Assistant Secretary D. Otis Beasley to Mr. A. T. Samuelson, Director, Civil Accounting and Auditing Division, General Accounting Office. A copy of that letter, together with a copy of an earlier letter of November 26, 1956, from Assistant Secretary Beasley to Mr. Samuelson comprising the Department's comments upon the Missouri Basin audit report of the General Accounting Office for the fiscal year ended June 30, 1955, are submitted with this statement for inclusion in the record as requested by Senator Case.

In the spring of 1955 the Bureau of Reclamation completed an economic analysis of the Missouri River Basin project bringing earlier analyses up to date in the light of more recent estimates of costs and reflecting current conclusions as to allocations of costs and repayment periods. This analysis was embraced in a document entitled "Economic Analysis, Missouri River Basin Project," as revised April 1955.

The economic analysis was transmitted to the chairmen, respectively, of the House and Senate Committees on Interior and Insular Affairs, Public Works, and Appropriations by letter from Assistant Commissioner Nielsen of the Bureau of Reclamation dated January 16, 1956.

Basic to the economic analysis is the inclusion of costs and revenues of Corps of Engineers projects in the Missouri River Basin and the application against irrigation costs on a basinwide basis of power revenues realized from the sale of power developed at all powerplants authorized to be constructed by section 9 of the Flood Control Act of 1944, including those constructed and to be constructed by the Corps of Engineers.

As is observed in the preface to the analysis, it was made on the basis of current (April 1955) economic practices of the Bureau of Reclamation. Particular reference is directed to the summary of economic analysis and the itemization of the procedures used in economic analysis which appear in the economic analysis immediately preceding the table of contents. A copy of the summary and the procedures are, for convenient reference, included in the appendix to this statement.

By letter dated May 9, 1956, from Assistant Secretary Aandahl to the chairman of the Senate Interior and Insular Affairs Committee, the Department indicated its endorsement and approval of the economic analysis. This letter was written in response to a request from the chairman for departmental comment on the findings of the analysis and upon the related average rate and repayment study for the Missouri River Basin dated December 1955. The chairman's request was reiterated by the committee in its report of April 23, 1956, on S. 2206, 84th Congress, which bill provided for the approval of the report of the Secretary of the Interior on the Ainsworth unit of the Missouri River Basin project (S. Rept. 1709, 84th Cong., 2d sess.). The pertinent paragraphs from Assistant Secretary Aandahl's letter of May 9, 1956, are noted at this point. The entire letter is included in the appendix to this statement:

"In respect to the Missouri River Basin economic analyses, members of the Department staff participated in preparation of the documents sent to you. Within the limitations and the assumptions set forth in those documents, we are confident that they present a valid appraisal of the economic aspects of the Missouri River Basin project.

"Based on the information in those documents, further analysis indicates that the Missouri River Basin project, comprising only those units constructed or under construction, may be substantially expanded and still repay all reim-

bursable costs within 50 years from completion of the last added unit at existing power rates. Units considered for addition in this analysis include Ainsworth, East Bench, Farwell, initial phase of Garrison division, Hardin, Lavaca Flats, Nickwall, first stage of North Loup division, Red Rock, and Shoshone extension units, and completion of the Cedar Bluff, Heart Butte, Kirwin, Lower Marias, St. Francis, and Webster units. It was to this situation that Assistant Secretary Aandahl referred when he stated 'I would only make a very general comment, and that is the study is sufficiently reassuring so that we should have confidence in going ahead with the matters that are immediately before us.'

"As to the long-range future, judgment as to the adequacy of power rates for the ultimate plan involves consideration of such factors as length of total payout period, the rate of construction of future units, the units finally selected for development, their cost, and other factors that cannot be evaluated now.

"The Bureau of the Budget has been furnished copies of the Economic Analysis and the Average Rate and Repayment Study. We are not aware of any views the Bureau of the Budget has expressed nor that it was intended to use the documents other than for information purposes."

In addition to the foregoing specific examples of departmental interpretation and implementation of the Missouri Basin authorization as including, on a basinwide basis, the application of revenues derived from the sale of corps-generated power to assist in the payout of irrigation costs, mention should be made of the presentations that have been made to the Appropriation Committees of the Congress continuously since enactment of the 1944 act.

The Department has consistently advised the Appropriation Committees in its annual budget presentations regarding its practice. Citation of extensive examples would lengthen this statement beyond reasonable limits. However, to demonstrate the consistency of the Department's practice reference will be made to the presentation made to the House Appropriations Committee upon the occasion of the initial request for funds following enactment of the Flood Control Act of 1944. This presentation represents a construction of the statute which was contemporaneous with its enactment.

The Flood Control Act of 1944 became law on December 22 of that year. On March 22, 1945, a supplemental appropriation request embracing funds for the Bureau of Reclamation with which to undertake initiation of preconstruction and planning activities in the Missouri Basin was submitted to the Congress. Hearings were held by the Subcommittee on Interior Appropriations of the House Appropriations Committee on March 24, 1945. These hearings are identified as Part 3: Missouri River Basin, of the printed hearings on the Interior Department appropriation bill for 1946.

The Commissioner and Assistant Commissioner of Reclamation, Harry W. Bashore and William E. Warne, respectively, made an extensive presentation to the subcommittee in which they developed the concept that the Missouri River Basin project comprised the execution on a coordinated basis of the integrated plans of the Bureau of Reclamation and the Corps of Engineers that had been approved by section 9 of the 1944 act. Extensive reference was made to Senate Document 191 and the history of the development of the Pick-Sloan plan, and its objectives, were gone into at considerable length. The following exchange between the chairman of the subcommittee, Representative Johnson, of Oklahoma, and Assistant Commissioner Warne and the comment of Representative Cannon, then, as now, the chairman of the full committee, are particularly illuminating on the issue before us:

"REIMBURSEMENTS

"Mr. JOHNSON of Oklahoma. I have one final question, Mr. Warne. I see, on page 2 of the same supplemental estimate, 118, under the Missouri River Basin is a word that has been in so many other estimates, the word 'reimbursable.' Does that mean 'reimbursable,' or is that just a sort of catchall word that is put in there to assist in securing sufficient funds?

"Mr. WARNE. Mr. Chairman, that means reimbursable in accordance with the plan as set up and as included in the material I submitted a little earlier from Senate Document 191 showing reimbursement.

"Mr. JOHNSON of Oklahoma. Of how much?

"Mr. WARNE. I shall give you the figures. The figure of $741,100,000 is the total estimated to be reimbursed, the rest of the cost being chargeable to flood control and navigation.

"Mr. JOHNSON of Oklahoma. Yes.

"Mr. WARNE. Of that total of reimbursement, $298 million would be expected to be returned by irrigation; $421,100,000 by power; and $20 million by payment of municipalities for municipal water supply. This 'reimbursable' here would bear a direct relationship to the total cost and would be allocated in the end among the functions in like manner as that indicated for the total cost.

"Mr. JOHNSON of Oklahoma. In other words, so that there would be approximately 50 percent of the actual cash outlay reimbursable and the other would be paid back in terms of flood control which might really be more than the cash involved?

"Mr. WARNE. Yes. In other words, this appropriation, if granted, will be accounted for in the same way as other later appropriations that we would bring before you. About half would be nonreimbursable.

"Mr. JOHNSON of Oklahoma. Mr. Chairman, would you like to ask the witness some questions?

"Mr. CANNON. No further questions, Mr. Johnson. I think you have covered the situation very thoroughly."

The figures cited by Mr. Warne are those embraced in Senate Document 191. They embrace, as is clear from the hearing and the material submitted to the committee in connection therewith, the revenues from Army-generated power as well as Reclamation-generated power and the application of such revenues against irrigation costs on a basinwide basis. Indeed, the entire hearings demonstrate without question that the Bureau of Reclamation and the Department of the Interior viewed section 9 of the Flood Control Act of 1944 as embracing all of the activities of the Bureau of Reclamation in connection with the Missouri River Basin project, including payout analyses, the construction of transmission lines and the marketing of Army-generated power, on a basinwide basis under principles of reclamation law. It is likewise clear that the Appropriation Committee so understood the presentation.

CONGRESSIONAL RECOGNITION AND ACCEPTANCE OF DEPARTMENT'S POSITION

A. Appropriations

Until the format of the annual departmental appropriation act was changed, commencing with the General Appropriation Act, 1951, to eliminate appropriations by specific projects, the appropriations to the Bureau of Reclamation for the Missouri River Basin project were consistently made by the Congress with direct reference to section 9 of the Flood Control Act of 1944. This evidences, in a manner completely consistent with the presentation annually made by the Bureau of Reclamation and the Department of the Interior, a congressional understanding that the Bureau of Reclamation was carrying on its portion of the Missouri River Basin project entirely under the authority of section 9 in accordance with reclamation law.

For example, the initial appropriation item for the Missouri River Basin project appearing in the Interior Department Appropriation Act, 1946 (act of July 3, 1945, 59 Stat. 318, 343), reads as follows:

"Missouri River Basin (reimbursable): For the partial accomplishment of the works to be undertaken by the Secretary of the Interior, pursuant to Section nine of the act of December 22, 1944 (Public Law 534), $3,200,000, to remain available until June 30, 1947: *Provided*, That this appropriation shall be expended, either independently or through or in cooperation with existing Federal and State agencies, only for detailed surveys, preparation of plans and specifications, and the performance of other work, preliminary to construction of the initial stages, and for the continuation by the Bureau of Reclamation of investigations on the general plan of development."

Note the reference to section 9 of the 1944 act. Substantially similar references to section 9 are found in the Missouri River Basin appropriation items in the First Deficiency Appropriation Act, 1946 (act of December 28, 1945, 59 Stat. 632, 648); the Interior Department Appropriation Act, 1948 (act of July 25, 1947, 61 Stat. 460, 476); the Interior Department Appropriation Act, 1949 (act of June 29, 1948, 62 Stat. 1112, 1129) and the Interior Department Appropriation Act, 1950 (act of October 12, 1949, 63 Stat. 765, 783).

Commencing with the departmental appropriation act for fiscal year 1947, transmission lines were included by specific reference to the appropriation lan-

guage for the Missouri River Basin item. For example, the pertinent provision of the fiscal year 1947 act reads as follows:

"Missouri River Basin (reimbursable); For the partial accomplishment of the works to be undertaken by the Secretary of the Interior, pursuant to Section nine of the act of December 22, 1944 (Public Law 534), $17,500,000, to remain available until expended for carrying out the initial stages (including the construction of transmission lines) and for continuing investigations on the general plan of development: *Provided*, That this appropriation shall be expended, either independently or through or in cooperation with existing Federal and State agencies."

Commencing with the fiscal year 1948 act, the reference to "initial stages" was dropped. I note this inclusion by the Congress of transmission lines as being included within the section 9 authorization in view of Senator Case's question during my oral testimony as to the source of statutory authorization for transmission line construction.

Over this entire period the only appropriation act carrying Missouri River Basin project funds that failed specifically to refer to section 9 of the 1944 Flood Control Act was the First Deficiency Appropriation Act of 1949 (act of May 24, 1949, 63 Stat. 76, 85) which carried an additional amount of $4,800,000 for the Missouri River Basin project with only a general reference to the act of December 22, 1944.

B. Other legislation

Equally persuasive of a congressional understanding and ratification of the Department's interpretation of the scope and breadth of section 9 of the 1944 act is to be found in a series of recent congressional enactments dealing with individual units of the Missouri River Basin project. These are the act of July 16, 1954 (68 Stat. 46) dealing with the Glendo unit, the act of August 21, 1954, authorizing the inclusion of the Ainsworth, Lavaca Flats, Mirage Flats extension and O'Neill units in the Missouri River Basin project; the act of May 2, 1956 (70 Stat. 126) dealing with the Red Willow and Wilson Dams; the act of May 18, 1956 (70 Stat. 160) giving approval to the construction of the Ainsworth unit; and the act of August 3, 1956 (70 Stat. 975) dealing with the Farwell unit.

The effect of each of these acts was a direction by the Congress that the particular unit or units dealt with should be coordinated and integrated, physically and financially, with the other Federal works constructed or authorized to be constructed by both the Bureau of Reclamation and the Department of the Army under the authority of section 9 of the Flood Control Act of 1944, as amended and supplemented.

In the Glendo joint resolution of July 16, 1954, the Congress gave its approval to the definite plan report on the Glendo unit which had been approved by the Secretary on February 19, 1954, and authorized construction and operation of the unit, "through its physical and financial coordination and integration with the other Federal works constructed or authorized to be constructed under the comprehensive plans approved by section 9 of the act of September 22, 1944 * * *, as amended and supplemented, with the financial objective of returning its reimbursable costs during a 50-year payment period."

In the act of August 21, 1954, which added the Ainsworth, Lavaca Flats, Mirage Flats extension, and O'Neill units to the Missouri River Basin project as theretofore authorized, the Congress directed that:

"The Secretary shall cause these units of the Missouri River Basin project to be coordinated and integrated, physically and financially, with the other Federal works constructed or authorized to be constructed under the comprehensive plans approved by section 9 of the Act of December 22, 1944, as amended and supplemented."

The act of May 2, 1956, provided for a transfer of jurisdiction as between the Secretaries of the Interior and Army over two units of the Missouri River Basin project that had been authorized as a part of the original authorization in section 9 of the Flood Control Act of 1944. Under the act, the Red Willow Dam was transferred to the jurisdiction of the Secretary of the Interior from the Secretary of the Army and conversely, jurisdiction over Wilson Dam was transferred from the Secretary of the Interior to the Secretary of the Army. Section 2 of the act provides as follows:

"Both the Secretary of the Interior and the Secretary of the Army shall cause these units of the Missouri River Basin project to be coordinated and integrated physically and financially with the other Federal works constructed or authorized to be constructed under the comprehensive plans approved by section 9 of the Act of December 22, 1944, aforesaid, as amended and supplemented."

The purpose of the act of May 18, 1956, dealing with the Ainsworth unit, was to approve a feasibility report on the Ainsworth unit that had been prepared by the Secretary of the Interior. Congressional approval of such reports was, by the act of August 21, 1954, which authorized the Ainsworth and the other units dealt with therein, made a condition prerequisite to the initiation of construction in accordance with the 1954 authorization. In the act of May 18, 1956, the Congress described the report of the Secretary, which it thereby approved, as "demonstrating the physical and economic feasibility of the Ainsworth unit of the Missouri River Basin project integrated as a part of said project by the act of August 21, 1954."

The act of August 3, 1956, reauthorized the Farwell unit of the Missouri River Basin project. Extensive changes had been made in the plans for that unit as embraced in Senate Document 191, necessitating reauthorization. In the reauthorizing legislation, the Congress directed that:

"* * * appropriate portions of the costs of constructing, operating, and maintaining such works shall be allocated to irrigation and returned in the same manner and under the same conditions as other irrigation costs of the Missouri River Basin project;"

The act further directs that—"The Farwell unit shall be integrated, physically and financially, with the other Federal works in the Missouri River Basin constructed or authorized to be constructed under the comprehensive plan approved by section 9 of the Act of December 22, 1944, as amended and supplemented."

The references in each of the foregoing enactments to financial integration or coordination can have meaning only in the context of the application on a basinwide basis of power revenues from all power developments embraced by section 9 of the 1944 Flood Control Act, whether constructed by the Department of the Army or the Department of the Interior, against irrigation costs beyond the ability of the water users to repay, in accordance with principles of reclamation law.

In each of these enactments, save for the reauthorization of the Farwell unit, the reference is to the "comprehensive plans" approved by section 9 of the Flood Control Act. While the reference in the Farwell unit is in the singular, to the "comprehensive plan," such reference is without significance. This is demonstrated on the face of the enactment itself by the requirement that the irrigation costs should be returned "in the same manner and under the same conditions as other irrigation costs of the Missouri River Basin project." This reference to the "same manner and conditions" makes it clear that the Congress intended that Army power should be included in the source of revenues for irrigation assistance, since that is the basis of power-revenue assistance in irrigation payout in the case of all other irrigation costs of the Missouri River Basin project.

In addition, as will be seen, the legislative history of the Farwell Act conclusively confirms a congressional understanding that the Missouri River Basin project embraces both the works constructed by the Army and Interior Departments, with marketing of energy by Interior under reclamation law and with basinwide payout in accordance with reclamation law principles.

In the case of each of the foregoing enactments, the Congress had before it reports from the Department indicating the Department's approach was on a basinwide basis. In a number of instances significant comments appear in the committee reports demonstrating, completely consistent with the text of the enactments, a congressional understanding that basinwide payout in accordance with Reclamation law is at the heart of the Missouri River Basin project as authorized by section 9 of the 1944 Flood Control Act.

In the case of the Glendo authorization, the Senate Interior and Insular Affairs Committee stated in its report (Report No. 1615, 83d Cong., 2d sess., June 17, 1954) that:

"The resolution would authorize the Secretary to include the modified Glendo (Wyoming) project in the comprehensive plans for the development of the water resources, and other purposes, of the Missouri River Basin as approved by sec-

tion 9 of the Flood Control Act of 1944, and authorized in that act and in the corresponding act of 1946."

The Senate committee report also includes the following statement:

"The report of the Department of the Interior is approved by the resolution. It shows that the reimbursable costs of the project can be returned in 50 years with interest on the power allocation. The committee notes, particularly, this claim for financial feasibility, and approves of the aid from power revenues for allocations to irrigation."

The reports of the House and Senate Interior and Insular Affairs Committees on the legislation that became the act of August 21, 1954, authorizing the Ainsworth, Lavaca Flats, Mirage Flats extension, and O'Neill units as parts of the Missouri River Basin project (S. Rept. 2212, 83d Cong., 2d sess., Aug. 4, 1954; House Rept. 1868, 83d Cong., 2d sess., June 15, 1954); each set forth the full text of the Department's report to the Congress dated June 10, 1954. In the course of the Department's report it advised the Congress that—

"The remaining costs allocated to irrigation could, under the terms of the bill, be met by application of power revenues from Federal plants in the Missouri River Basin in excess of those necessary to return the costs allocated to commercial power. They could also be met, in part, by irrigators' payments over a period longer than the 40 years assumed in this report."

The other three statutes involved were each enacted by the Congress following the transmittal to the Congress of the Missouri River Basin project economic analysis early in 1956.

In the case of the act of May 18, 1956, dealing with the Ainsworth unit, the report of the Senate Interior and Insular Affairs Committee (S. Rept. 1799, 84th Cong., 2d sess., April 23, 1956) made the following significant comments:

"The irrigation water users, over a 40-year period, will repay approximately $8 million or approximately 30 percent of the estimated cost. The annual payment capacity of the lands in the Ainsworth unit is estimated to average $8.35 per acre with operation and maintenance cost of $2.30 per acre.

"The remainder of the construction costs will be repaid from surplus power revenues of the Federal Missouri River Basin project. The committee inquired of the Department of the Interior regarding the availability of surplus revenues from the Missouri River Basin system to absorb the excess cost of the Ainsworth and other units in the reclamation program for that project.

"On January 16, 1956, the Acting Commissioner of Reclamation, Neilsen, of the Bureau of Reclamation, submitted an economic analysis of the Missouri River Basin project which reflects findings of that agency that anticipated power revenues in the Missouri River Basin system will be adequate during the repayment period to absorb construction costs of the Ainsworth and other units listed, which are beyond the ability of the water users to repay. The chairman of the committee has requested the Secretary of the Interior to provide departmental comment on the findings of the analysis as well as the average rate and repayment studies and payout study of December 1955.

"On the basis of the analysis, there appears no question as to adequacy of surplus power revenues under present rates to absorb the irrigation construction costs of the Ainsworth and other units programed for construction beyond the ability of the water users to repay. Nevertheless, the committee concurs in the request of the chairman to the former Secretary of the Interior that the Department should comment officially on the economic analysis of the Missouri River Basin project and average rate and repayment studies and payout study as of December 1955. In view of the concern that the Bureau of the Budget has indicated in this phase of the Missouri River Basin financial operations, the Department should include the comments of that agency also."

As indicated earlier in the text of this statement, the Department of the Interior responded to the request for official comments embraced in the committee report, by letter of May 9, 1956, from Assistant Secretary Aandahl to Chairman Murray, expressing complete concurrence in the economic analysis.

In its report (H. Rept. 1764, 84th Cong., 2d sess., February 14, 1956), the House Interior and Insular Affairs Committee observed that, "The estimated cost of the project is about $25,934,000, of which 98 percent would be repaid

under the repayment plan for the Missouri River Basin project." The House committee's report also stated the committee's conclusion that the report submitted by the Secretary of the Interior on the Ainsworth unit met the requirements of the authorizing act of August 21, 1954. The letter report of the Commissioner of Reclamation dated March 16, 1955, to the Secretary of the Interior, which is a part of the Secretary's report and is set forth in House Report 1764, states that, "Our analyses of the Missouri River Basin project indicate that the basinwide net revenues will be adequate to pay all reimbursable costs, including those of the Ainsworth unit in a period of time well within the useful life of the works."

The following is quoted from the report of the Senate Interior and Insular Affairs Committee upon the legislation which became the act of August 3, 1956, reauthorizing the Farwell unit (S. Rept. 2532, 84th Cong., 2d sess., July 12, 1956):

"DESCRIPTION OF THE FARWELL UNIT

* * * * * * *

"Repayment: Maximum repayment ability of lands in unit to be irrigated is $11,160,000 or 41 percent. Remainder of repayable costs of not less than $17,488,000, would be repaid from Missouri River Basin project's surplus power revenues.

"Period of repayment: 40 years with a 5-year development period for costs to be repaid by irrigators, with consideration of variable repayment formula which might extend period; 50-year repayment period for costs to be repaid by surplus power revenues."

* * * * * * *

"AID FROM SURPLUS POWER REVENUES

"The committee calls attention to the benefits accruing to an entire river basin from the development of public power facilities in connection with the Missouri River Basin project. More than 60 percent of the construction costs of the Farwell irrigation unit will be repaid from surplus power revenues of hydroelectric generating facilities located outside the State of Nebraska. This is only one of many irrigation developments in the States of Montana, North and South Dakota, Wyoming, Nebraska, and Kansas, areas of the Missouri River Basin that have been made possible by the integration of the financial aspects of the Missouri River Basin project.

"The Department of the Interior has reported that the surplus revenues of the Missouri River Basin project, as now foreseen, will be adequate to repay the construction costs of a substantial group of irrigation developments beyond the ability of the water users to repay."

* * * * * * *

"CONCLUSIONS OF THE COMMITTEE

"The committee concludes the project plan for the Farwell unit, which is reauthorized by S. 3594, is in keeping with the objectives of the original authorization of the Missouri River Basin project. It, therefore, recommends that the bill do pass."

The House Committee on Interior and Insular Affairs in its report on the Farwell legislation (H. Rept. 2595, 84th Cong., 2d sess., July 3, 1956), stated in part:

"* * * The Farwell unit would be integrated physically and financially with the other Federal works in the Missouri River Basin."

* * * * * * *

"The remainder of the construction costs would be derived from other revenues of the Missouri River Basin project. A recent reanalysis of the Missouri River Basin project economics indicates that the basinwide net revenues will be adequate to pay all reimbursable costs, including those of the Farwell unit which are beyond the ability of the water users to repay. Economic justification for the unit is demonstrated by the fact that the overall benefits exceed the costs by a ratio of 1.88 to 1."

* * * * * * *

"The committee believes that the Farwell unit is a sound development from a physical and economic standpoint and is a desirable addition to the Missouri

River Basin project. The committee, therefore, recommends that H. R. 7435, as amended, be enacted."

Finally, there is the following excerpt from the July 21, 1955, report of the Senate Committee on Interior and Insular Affairs on the legislation which became the act of May 2, 1956, dealing with the Red Willow and Wilson Dams (S. Rept. 1066, 84th Cong., 1st sess.). No clearer indication of congressional recognition of the nature of the Missouri River Basin project as a coordinated development embracing the comprehensive plans of both Departments, with basinwide application of power revenues from all sources against irrigation costs in accordance with reclamation law could be desired:

"The theory of the coordinated agreement between the Bureau of Reclamation and the Corps of Engineers which led to the authorization of the Missouri River Basin project in the Flood Control Act of 1944 was that where a dam was primarily for irrigation, the construction would be authorized to the Department of the Interior through the Bureau of Reclamation. Where a dam was primarily for flood control or navigation, the construction assignment would be made to the Department of the Army through the Corps of Engineers. Under this arrangement, all of the large main-stem dams on the Missouri River, with the exception of Canyon Ferry in its headwaters in Montana, were assigned to the corps, together with a limited number of dams on certain tributaries. Most of the dams on western tributaries of the Missouri were assigned for construction by the Bureau of Reclamation since practically all of these structures were primarily for the storage of water for irrigation. Under the agreement which was approved by the Flood Control Act of 1944, power produced at any of the dams in the Missouri River Basin project, whether by the Corps of Engineers or the Bureau of Reclamation, would be transmitted and sold by the Secretary of the Interior.

"The net revenues from power are pooled under the law and are available for financial aid to irrigation construction beyond the ability of irrigation water users to repay.

"In addition, the Secretary of the Interior is responsible for the disposal of water for irrigation or space reserved for this purpose in any of the dams in the Missouri River Basin project, while the Secretary of the Army is responsible for flood-control regulation."

CONCLUSION

From the foregoing, including the testimony orally given to which this prepared statement is a supplement, the following conclusions are reached:

1. Certainly the construction originally placed by the Department of the Interior upon the Flood Control Act of 1944 to the effect that the Department's actions are governed entirely by the provisions of section 9 and not by section 5 is not an unreasonable one considering the text of the two sections and the contents of the comprehensive plans approved by section 9. At worst, it can be argued that sections 5 and 9 both provide for power developments. However, section 5 does not deal at all with irrigation. It can hardly be considered, in the light of the Army and Interior plans, that irrigation, including the payout of irrigation costs by basinwide pooling of power revenue costs, is not an essential element of the Missouri Basin development.

In these circumstances, it is arguable, to say the least, that since section 5 deals at the most only with one of the elements of the Missouri Basin project, i. e., the marketing of power from Army projects, whereas section 9 deals not only with that but with all of the elements as well, it is legally permissible, in construing the Flood Control Act, to conclude that section 5, for that reason alone, has no application to the Missouri River Basin.

Moreover, considering that both sections 5 and 9 deal with the subject of power development, section 5 deals with that subject generally whereas section 9 deals specifically with power of the Missouri River Basin project. Ordinarily, the courts hold in construing statutes that a special provision in a statute will prevail over a provision dealing in general terms with the same subject as that covered by the special provision (*Kepner* v. *United States*, 195 U. S. 100, 125; *Missouri* v. *Ross*, 299 72, 76). Application of that rule here likewise supports the construction placed upon the statute by the Secretary of the Interior from the outset.

The Secretary's construction moreover results in an application of the statute which is in harmony with the statement of policy embraced in section 1, and particularly in subparagraph (b) of section 1, a policy of facilitating the

beneficial consumptive use of water for multiple purposes. Applicability of section 5 to power matters in the Missouri River Basin would tend to defeat the achievement of that purpose since it would render realization of the comprehensive development impossible because payout of the irrigation costs could not be accomplished. On the other hand, the construction placed by the Department on section 9 facilitates the achievement of the objective of the statute as set forth in section 1 since it makes possible the construction of irrigation developments by providing a means of payout in accordance with Reclamation Law.

Finally, it must again be emphasized that without the application of power revenues from the Army developments, the irrigation units of the Missouri River Basin could not be undertaken because payout as required by reclamation law could not be accomplished. To read section 9 narrowly so as not to cover this essential requirement would result in the complete frustration of the intent of the Congress as set forth in the section for it would render it impossible even to undertake the reclamation developments covered by the Department's plan which were concededly intended to be approved and authorized by section 9. Such an absurd result should be reached only if the statutory language permits of no other construction. Statutes are to be construed in their entirety to accomplish results in harmony with their overall purposes (*Silver* v. *Ladd*, 74 U. S. 219; *United States* v. *Gaskin*, 320 U. S. 527; *United States* v. *Menasche*, 348 U. S. 528; *Mastro Plastics Corp.* v. *N. L. R. B.*, 350 U. S. 270). They will not be construed, where any other construction is possible, in such manner as to lead to absurd results (*Fleckner* v. *U. S. Bank*, 21 U. S. 338; *Armstrong Paint Co.* v. *Nu Enamel Corp.*, 305 U. S. 315; *United States* v. *Brown*, 333 U. S. 18).

2. The practice of the Department in proceeding in the Missouri Basin on the premise of the applicability of section 9 of the 1944 act has been consistent and open. It is well known to the Congress.

3. The Congress has not only appropriated funds in the light of knowledge of the Department's practice; it has by subsequent legislation recorded its understanding that the Department's practice is an essential element of the administration of the Missouri River Basin project and is completely consistent with the provisions of section 9.

In these circumstances, even if it be conceded that there might have been reasonable grounds for a differing construction of the statute immediately following its passage, the Department's interpretation should not now be overturned. It is a rule of statutory construction of long standing that a continued, uniform interpretation by the agency charged with the carrying out of the provisions of an ambiguous statute will be regarded as controlling, even though originally the court might have reached a different conclusion than the administering agency had the matter been before it at that time (*Brown* v. *United States*, 113 U. S. 568; *Logan* v. *Davis*, 233 U. S. 613; *United States* v. *Jackson*, 280 U. S. 183; *United States* v. *Chicago, North Shore Railroad Co.*, 288 U. S. 1).

Particularly should such a construction be favored when, as here, the Congress has acted on the basis of that construction and given its own expressions of concurrence therein through appropriations and substantive legislation as well.

EXHIBIT I TO THE PREPARED STATEMENT OF EDWARD WEINBERG

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington 25, D. C., May 9, 1956.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

MY DEAR SENATOR MURRAY: Your letter of April 2, 1956, requests the official views of this Department on two matters: The recently released Economic Analysis, Missouri River Basin Project, as revised April 1955, and the related Average Rate and Repayment Study for the Missouri River Basin dated December 1955 and, secondly, the Helena Valley repayment contract situation.

In respect to the Missouri River Basin economic analyses, members of the Department staff participated in preparation of the documents sent to you. Within the limitations and the assumptions set forth in those documents, we are confident that they present a valid appraisal of the economic aspects of the Missouri River Basin project.

Based on the information in those documents, further analysis indicates that the Missouri River Basin project, comprising only those units constructed or under construction, may be substantially expanded and still repay all reimbursable costs within 50 years from completion of the last added unit at existing power rates. Units considered for addition in this analysis include Ainsworth, East Bench, Farwell, Initial Phase of Garrison Division, Hardin, Lavaca Flats, Nickwall, First Stage of North Loup Division, Red Rock, and Shoshone Extensions Units, and completion of the Cedar Bluff, Heart Butte, Kirwin, Lower Marias, Saint Francis, and Webster Units. It was to this situation that Assistant Secretary Aandahl referred when he stated "I would only make a very general comment, and that is the study is sufficiently reassuring so that we should have confidence in going ahead with the matters that are immediately before us."

As to the long-range future, judgment as to the adequacy of power rates for the ultimate plan involves consideration of such factors as length of total payout period, the rate of construction of future units, the units finally selected for development, their cost, and other factors that cannot be evaluated now.

The Bureau of the Budget has been furnished copies of the Economic Analysis and the Average Rate and Repayment Study. We are not aware of any views the Bureau of the Budget has expressed nor that it was intended to use the documents other than for information purposes.

In specific relation to S. 2206 concerning the Ainsworth unit, the views of the Department are expressed in Assistant Secretary Aandahl's letter to you of March 27, 1955.

With regard to the Helena Valley unit of the Missouri River Basin project, we share with you the desire that construction of this unit proceed as promptly as circumstances permit. We believe, however, that under the present circumstances construction should not proceed until there is firm assurance of adequate repayment coverage. This is the position recommended by the Bureau of Reclamation and endorsed by us. Contrary to the assertions of your letter, it does not represent a reversal by the Department of plans by the Bureau of Reclamation to initiate construction of the Helena Valley unit.

Admittedly, some confusion developed during the various appropriations hearings as to what constituted adequate repayment coverage in the case of the Helena Valley unit. We made a sincere effort subsequently to clarify our position on this matter as evidenced by the testimony of our representatives in the hearings which you called on September 29, 1955, and January 19, 1956. This was the purpose also of the communications dated September 23, 1955, addressed to the chairmen of the House and Senate Appropriations Committees to which your letter makes reference.

We recognize that the reclamation law does not require the execution of repayment contracts prior to construction; however, such contracts are required under the law before the actual delivery of water. It would appear self-evident that the only prudent course to follow in connection with proposed projects is that construction of such projects not be commenced until local interests definitely indicate that the project is desired and that they are willing to accept responsibility for repayment as evidenced by the execution of repayment contracts in advance of construction. Consideration of the construction and repayment program for the Helena Valley unit should give full recognition to this principle.

The Helena Valley unit works as designed and proposed for construction include capacity and facilities to serve 17,600 acres—13,000 acres with a full water supply and capacity to provide a supplemental water supply to some 4,600 acres currently being irrigated. It was contemplated that the full and supplemental water supply lands would repay approximately $1.5 million in 40 years, or about 12 percent of the construction cost of the unit.

The Helena Valley Irrigation District, as now organized, comprises only the irrigable lands in need of a full water supply and for which irrigation distribution facilties are proposed for construction. The water service and repayment contract proposed with this District is estimated to return about $800,000, or only about 7 percent of the construction cost of the Helena Valley unit. This 7 percent repayment return involving the full water supply lands is only slightly more than one-half of the approximately 12-percent return involving the 17,600 acres for which the unit would be constructed. Attempts to organize the supplemental water supply lands for purposes of contracting with the United States have not been successful.

In an effort to assure the financial integrity of this unit and attain the optimum development of the unit, the Bureau of Reclamation has proposed a water service arrangement with the city of Helena under which an additional 5 percent construction repayment would accrue to assure approximately 12 percent repayment coverage. Negotiations with the city on the proposed arrangement have progressed to the point where the city has recently requested the Bureau to submit a preliminary draft of contract for the city's consideration. If the negotiations with the city are concluded successfully and if the water users of the Helena Valley Irrigation District accept the contract which has been negotiated with the district's board of directors, we shall be in a position to move ahead with construction of the Helena unit.

The House Appropriations Committee will have an opportunity to review the matter soon and may at that time make known its views on proceeding to construction solely on the basis of a satisfactory contract entered into with the Helena Valley Irrigation District.

Your later letter, dated April 27, 1956, concerning the above has been received and this reply is intended to cover both letters. We regret any inconvenience that delay in answering your letter of April 2 may have occasioned. Because of the very short period between receipt of your letter and Secretary McKay's departure, it was not practical to prepare a reply in time for his personal attention.

We are sending a copy of this reply to Senators Hayden and Mansfield and Representative Metcalf, who received copies of your April 2 letter.

Sincerely yours,

(Signed) FRED G. AANDAHL,
Assistant Secretary of the Interior.

SUMMARY OF ECONOMIC ANALYSIS—MISSOURI RIVER BASIN PROJECT, REVISED APRIL 1955

Project capacity

	Acres
Irrigable area:	
Full	3,598,100
Supplemental	736,900
Total	4,335,000
	Kilowatts
Power installation	2,434,400

Cost (See table 3 and table 4)

Bureau of Reclamation:	
Missouri River Basin project	$2,701,083,000
Fort Peck transmission system	23,277,000
Share of Kendrick project storage	1,116,000
Other Interior agencies	38,510,000
Corps of Engineers	2,557,513,000
Estimated total cost	5,321,499,000
INTERSET DURING CONSTRUCTION	
Commercial power	53,814,000
Municipal water	426,000
Total interest during construction	54,240,000
Total cost to be allocated	5,375,739,000

Allocation and repayment

	Allocation	Repayment
Reimbursable:		
Irrigation	$2,235,749,000	$385,528,000
Commercial power (includes $53,814,000 for interest during construction)	1,144,238,000	[1] 3,066,405,000
Municipal water (includes $389,000 interest during construction)	7,600,000	[1] 7,600,000
Recreation	16,037,000	----------
Fish and wildlife	342,000	----------
Buford-Trenton work—investigations of inactive units and other Interior agencies	55,567,000	----------
Total reimbursable	3,459,533,000	3,459,533,000
Nonreimbursable:		
Flood control and navigation	1,849,576,000	----------
Fish and wildlife	1,950,000	----------
Rapid City Air Base water supply (includes $37,000 for interest during construction)	1,037,000	----------
Total nonreimbursable	1,852,563,000	----------
Deferred:		
Investigations of potential units	6,665,000	----------
Future power system additions	56,978,000	[3]
Total deferred	63,643,000	----------
Total allocation and repayment	5,375,739,000	[2] 3,459,533,000

[1] Also interest paid on unpaid balance of cost allocated to this function.
[2] Considered self-liquidating.
[3] Exclusive of payments for self-liquidating future additions to the power system.

COMPLETION AND PAYOUT

Interest rates: Commercial power, 3 percent; municipal water, 2½ percent.
Power rates:
Firm energy, 5.5 mills per kilowatt-hour.
Nonfirm energy, 3.3 mills per kilowatt-hour.
Irrigation pumping energy, 2.5 mills per kilowatt-hour.
Excess capacity for peaking, $15,000 per kilowatt.
20 percent of total power costs are allocated to irrigation pumping (interest-free) and 80 percent to commercial power (interest-bearing).
Irrigation repayment by water users: Irrigators pay for 40 years following the development period for each block of land.

Completion

	Construction period in years after 1950	Date all facilities are in service
Power	20	1970
Municipal water	25	1975
Irrigation	50	2000

Repayment

	Repayment period in years after all facilities in service	Date of completion of repayment
Power	43	2013
Municipal water	50	2025
Irrigation	67	2067

BENEFIT-COST RATIO

Construction cost estimates based on prices as of June 1954. Period of analysis—100 years.

Total project benefit-cost ratio for all Bureau of Reclamation units=1.62.

PROCEDURES USED IN ECONOMIC ANALYSIS—ACTIVE UNITS, MISSOURI RIVER BASIN PROJECT, REVISED APRIL 1955

1. Analysis includes all active units of the Missouri River Basin project.

2. Construction cost estimates are official estimates of the Bureau of Reclamation, other Interior agencies, and the Corps of Engineers for their respective programs.

Allocations of cost are made by the separable costs-remaining benefits method for units where separable costs are available, and by the alternative justifiable expenditure method for other units. Allocations to fish and wildlife and to recreation are generally limited to specific costs. Allocations of six multiple purpose main-stem dams were provided by the Corps of Engineers.

4. To reflect the installed power capacity required for irrigation pumping, 20 percent of costs allocated to power are suballocated to irrigation pumping plant and are distributed among individual pumping units, for use in benefit-cost analysis.

5. Reservoir costs allocated to irrigation, including storage in main-stem reservoirs, are distributed among individual units served by reservoirs, for use in benefit-cost analysis.

6. Benefits are based on existing Reclamation procedures, and include both direct and indirect benefits for irrigation. Power benefits are based on alternate costs according to interagency agreement. A 100-year period of analysis is used in benefit-cost computations, as lesser periods would not be consistent with the life of the works or the schedules of investment and repayment. Benefit-cost ratios are shown for each reclamation unit.

7. Costs allocated to irrigation are repaid without interest. Municipal water and power investments include 2.5 percent interest during construction. Municipal water investment is repaid with 2.5 percent interest on unpaid balances, and commercial power investment is repaid under assumption of 3 percent interest on unpaid balances.

8. Power revenues are based on rates of 5.5 mills per kilowatt-hour for firm energy, 3.3 mills for nonfirm energy, 2.5 mills for irrigation pumping energy, and $15 per kilowatt for peaking capacity..

9. Energy generated at all reclamation plants and six Corps of Engineers plants, together with energy in excess of project use at Shoshone, Riverton, Kendrick, and Colorado-Big Thompson projects, is marketed through the Missouri Basin transmission network.

10. Revenues from irrigators and conservancy districts were assumed to extend 40 years following a development period of not more than 10 years for each block of land. Revenues from municipalities were assumed to extend for 50 years.

11. Power revenues are used to assist in repayment of costs allocated to irrigation and other miscellaneous reimbursable costs. Surplus municipal water revenues are not applied to assist irrigation in the present study.

12. A portion of municipal water costs and costs allocated to fish and wildlife are nonreimbursable under special legislation. Costs allocated to flood control and navigation are shown as nonreimbursable.

Exhibit II to the Prepared Statement of Edward Weinberg

Department of the Interior,
Office of the Secretary,
Washington, D. C., November 26, 1956.

Mr. Adolph T. Samuelson,
Director, Civil Accounting and Auditing Division,
General Accounting Office, Washington 25, D. C.

My Dear Mr. Samuelson: By letter dated June 1, 1956, you transmitted to us the observations of the Civil Accounting and Auditing Division on the deficiencies and weaknesses in the operation of the Missouri River Basin project, Bureau of Reclamation, for the fiscal year ended June 30, 1955. Attached herewith are two copies of our reply to the comments.

We wish to thank you for making the observations of the Civil Accounting and Auditing Division available for our review and comment.

The three copies of the proposed report transmitted to us with your letter of June 1, 1956, are returned herewith.

Sincerely yours,

(Signed) D. Otis Beasley,
Administrative Assistant Secretary.

Department of the Interior: Comments on Proposed Report of Division of Audits on Missouri River Basin Project, General Accounting Office

1. Allocation of construction costs and multiple-purpose projects

The report indicates that the Federal water resource program is based on a large number of laws that are administered by several agencies and that these laws do not provide uniform provisions, policies, or criteria that are fundamental in carrying out this program. While the report recognizes that general agreement on cost allocations of multiple-purpose projects has been reached by the Department of the Interior with the Corps of Engineers and the Federal Power Commission, it points out that in the past the allocation of construction costs by the Corps of Engineers and the Department has differed substantially through the choice and application of methods of allocation and that as a result a wide range of power rates could be justified. Therefore, it recommends that Congress provide the policies and criteria to be applied for allocation of costs of multipurpose projects and that the criteria for cost allocations provide for (1) period for repayment of construction costs, (2) rates of interest, and (3) subsidies to nonpower purposes.

Comments.—The Department has commented at some length on these matters in connection with the audit report of the southeastern area river basins and related facilities for the fiscal year ended June 30, 1955. Comments therein are equally applicable to the proposed report on the Missouri River Basin project.

2. Inclusion of Fort Peck project as a part of Missouri River Basin project

The report states that the Fort Peck project is considered by the Bureau of Reclamation as an integral part of the Missouri River Basin project for purposes of determining Missouri River Basin project feasibility and repayment, although separately authorized.

It recommends that if the Bureau desires to continue to so treat the earnings of Fort Peck project, specific legislative authorization should be obtained from the Congress.

Comments.—For the purpose of determining an average commercial rate for power and energy in the marketing area of the Missouri River Basin project the Fort Peck Dam and powerplant are considered as an integral unit of the Missouri River Basin project. However, the economic feasibility of units of the Missouri River Basin project is appraised in individual unit definite plan reports or justifications prior to approval for construction. Such material has been submitted to the House Appropriations Committee in connection with requests for appropriations, and full unit justification data are presented in budget documents.

The Department feels that this issue has been needlessly confused by current and prior General Accounting Office comments which fail to recognize the purpose served by the Bureau's presentation of consolidated studies of the two projects involved. Such consolidation is very useful, and perhaps the only realistic manner in which market area rate level application can be equitably determined. It has in no way permitted looseness or laxity in construction of separate units of the Missouri River Basin project by the assumption of allegedly inflated repayment prospects of the basinwide plan, because such construction is rigidly governed by the criteria for economic justification which the Bureau has consistently prepared for the Congress, and by the requirements of law, specifically section 9 (a) of the Reclamation Project Act of 1939.

The Fort Peck dam was separately authorized for navigation by the Rivers and Harbors Act of August 30, 1935, and the Fort Peck power production and transmission facilities were authorized by the act of May 18, 1938. The Flood Control Act of December 1944, which authorized the Missouri River Basin project, created a physical interrelationship of features which requires integrated rather than separate economic and engineering determinations of power system rates. The magnitude of power production from Fort Peck powerplant influences and is influenced by water storage, release and production of the five additional larger projects downstream on the Missouri River. Transmission properties of the Fort Peck project interconnect at several points with transmission properties of the Missouri River Basin project. Energy in large quantities is interchanged frequently between projects. The market area for the two projects is not distinguishable by subdivisions on the basis of power source. It follows from these facts that rate determination cannot be on the basis of dual computations.

With further reference to the matter of authorization, the plans presented in S. Doc. 191, 78th Congress, contemplated the incorporation of the Fort Peck project as an integral part of the Missouri River Basin project. This includes the Fort Peck reservoir as well as the power plant. There are a number of references to the Fort Peck facilities in S. Doc. 191 that support the inclusion of the Fort Peck project in the Missouri River Basin project, some of which follow:

(1) From page 115:

"The reauthorization of the Fort Peck dam on May 18, 1938, was for the purpose of improving navigation on the Missouri River and for other purposes incidental thereto, including power. The plan herein presented makes irrigation a primary use of water, and substitutes other storage downstream for the Fort Peck Reservoir, to serve navigation and other purposes."

(2) From page 116:

"Water stored in the Oahe Reservoir will be available for navigation purposes on the lower river, as a substitute for water taken from the Fort Peck Reservoir for irrigation and other purposes."

(3) From the discussion of main stem storage on page 116:

"By the construction of these three reservoirs, the river will be sufficiently regulated to control floods, develop all power possibilities, eliminate silt, create enormous recreational possibilities, permit the use of Fort Peck Reservoir for irrigation, * * *"

(4) From the discussion of Missouri River pumping plants on page 117:

"These pumping plants will be served with electrical power for pumping from the Fort Peck powerplant."

(5) From the discussion of the Missouri-Souris diversion on page 114:

"Power required to pump the water over the divide near Grenora will be developed at the Crosby and Des Lacs powerplants, but for short periods the powerplant at Fort Peck will be drawn upon to assist these plants to the extent of 30,000 kilowatts."

The Fort Peck powerplant is included in a tabulation of the Missouri River Basin project, "Hydroelectric plants to be operated for firm power" on page 136 of S. Doc. 191; and also in a second tabulation of plants to be operated" * * * for seasonal power."

A similar tabulation on page 141 includes the Fort Peck plant showing installed capacity, annual generation, and costs. In reference to this tabulation it is stated:

"The costs of facilities to be used in the production of firm power, and the distributions of such costs, are summarized in the following table, in which 1940 costs were used."

From the same page:

"Two plants, one at Fort Peck and one on the Tongue River, will be used chiefly to generate power for pumping, but each will yield some firm power. The costs of those two powerplants are divided, an appropriate part being charged to power."

Also the Fort Peck power transmission line system is shown on drawing 58–D–495, page 138, as an integral part of the proposed Missouri River Basin project transmission system. The power production from Fort Peck is included with the production of the proposed Missouri River Basin project plants throughout the discussion of power on pages 134 to 142, inclusive.

From the references above, it is clear that the plans presented in S. Doc. 191 incorporated the Fort Peck project as an integral part of the Missouri River Basin project.

3. Status of repayment of construction costs allocable to power

The report states that definitive agreements have not been executed between the Corps of Engineers and the Bureau of Reclamation for an allocation of a share of revenues as return of reimbursable power costs to corps constructed and operated powerplants on the main stem of the Missouri River. It indicates further that until this determination is made, it is not possible to ascertain the amounts of revenue applicable to return of reimbursable costs of the Bureau constructed and operated plants.

To afford the basis for showing the status of repayment of the Government's investment in water resource development in Missouri Basin, and a financial evaluation of operating results, it recommends that agreements be reached and negotiated between the agencies.

Comments.—For several years the Bureau of Reclamation has prepared a Missouri River Basin project power system average rate and repayment study. The studies consolidate the operations, costs, revenues and investments of the Bureau and the Corps of Engineers in the Missouri River Basin. Detailed working papers, on file in the Bureau of Reclamation, segregate specifically all the data applicable to each agency.

For the first 10 years of operation of the Fort Peck project the Bureau of Reclamation prepared the Fort Peck project annual report for the Congress under provisions of the act of May 18, 1938. This is a complete financial statement of the project involving both agencies, on the basis of standard accounting procedures. This report was fully informative on the status of repayment and was a matter of public information. It was discontinued under the provisions of Public Law 706, 83d Congress, 2d session, approved August 30, 1954 (H. R. 6290).

During this 10-year period and subsequently there has been no need for or purpose to be accomplished by an agreement between the Bureau of Reclamation and Corps of Engineers on allocation of revenues.

The Bureau of Reclamation and the Corps of Engineers comply in full and individually with the reporting requirements of the Federal Power Commission by the submission of the annual FPC Form 1 report on operations.

The department has serious doubts respecting the usefulness of separate reporting of Corps-originating and reclamation-originating revenues to the Congress or to the public. Moreover, a degree of arbitrary assignment of revenue would be required. In the first place, Corps power production and Bureau production are integrated in order to maximize system output of energy of the highest commercial value. Most Federal powerplants in the Missouri River Basin are interconnected, and it is intended that in a very few years all will be interconnected. Thereupon it will be impossible to identify the source of all energy sold by energy class, such as firm, nonfirm, and irrigation pumping, and by powerplants contributing to the system total. In the second place, a major share of the Bureau of Reclamation transmission investment is in facilities designed to market energy generated at Corps powerplants. Were it possible to associate precisely the income value of energy generated at Corps powerplants, such income should not accrue entirely to the Corps and appear on that agency's financial statements because it could not be realized without the expenditure of over $100,000,000 to transmit the energy from the Missouri River plants to the load centers. Here again an arbitrary assignment of revenue to transmission plant would be necessary due to the benefit-creating function which this transmission plant performs. But, here again, this transmission plant is or will be interconnected and fully integrated with Bureau of Reclamation generation, serving each agency jointly but in an indeterminate monetary degree.

The department considers that the consolidated statement of the financial and repayment status of the Missouri River Basin project and associated works is consistent with the physical and operating facts and accurately and informatively reflects the results of these works.

6. Classification of preconstruction costs of Bureau of Reclamation as construction work in progress.

This comment has been previously included in audit reports, and as pointed out in this report action has been taken to establish standard practices and procedures which will overcome the objection raised. The Bureau has already acted in removing significant amounts from the construction category and returning them to an investigations status. Examples are Narrows, Shoshone Extensions, Moorehead, and Missouri division units, all of which are mentioned in the report. Future actions will be consistent with this, and in the case of units moving from an investigations to a construction category for the first time, such action will be taken when physical construction is certain.

The Bureau is conducting studies to determine appropriate and justifiable costs which may be classified either as abandoned or deferred. When this determination has been made, appropriate adjustments will be effected.

7. Financial integration of power systems in Missouri River Basin

The report indicates that power revenues resulting from integrated operation of the western division, Missouri River Basin project, power system are apportioned without reference to quantity of power delivered to the system, and that consolidated operation does not disclose actual financial results of the individual projects. It recommends that the Department obtain specific legislative authorization for the consolidation of power operations and that the basis for allocation to participating projects of power revenues be reviewed.

Comments.—The Department has previously furnished comment and reference in this matter. Relative to obtaining specific legislative authorization for these consolidations, reference is made to pages 1072 to 1074, inclusive. Hearings of the Subcommittee on Appropriations, House of Representatives, for fiscal year 1953. It is the position of the Department that this complete disclosure to the Congress in 1953 and similar presentations in subsequent years of the administrative steps which were taken to accomplish power system integration is entirely proper and sufficient without further specific enactment by the Congress.

With respect to the basis of revenue distribution to participating projects, the Bureau of Reclamation has, as the audit report states, followed the procedure of allocating predetermined repayment amounts based on the 1951 average rate and repayment studies. The governing principle involved is that repayment of participating projects should be not less or no more financially favorable than was forecast prior to integration with the Missouri River Basin project. Payments during the first 3 years of integrated operations were designed to assure this principle.

During the first 3 years of integrated operation, however, it became apparent that the energy contributions by projects to the system were not, for various physical reasons, in accordance with energy forecasts which were the basis for 1951 revenue and repayment studies. These physical circumstances gave rise to inequitable payments among projects. Therefore, the method of revenue distribution was modified, effective in FY 1956, the fourth year of integrated operation, so as to relate the payment directly to energy generated and delivered to the system. The principle of full and equal financial soundness of each project was maintained by computation of a rate sufficient to meet all costs and obligations as estimated prior to integration, with provision for review at 5-year intervals and for minor rate adjustments if necessary. This modification in procedure has proven satisfactory, and it should answer the objections of the auditors. The Bureau of Reclamation was aware of this situation which now has been improved through normal review processes and procedural changes.

8. Federal power service to Government installations

The report states that the overall advantage to the Federal Government would have been greater if power had been furnished the Great Falls air base from Federal power facilities in the area, rather than permitting service to be established from the privately-owned utility. It recommends that an agency in the Executive Department should be designated to review and enfore the making of arrangements that would provide lower power costs to the Government's operating installations and increased power revenues to Federal power installations.

Comments.—In this instance it is felt that the General Accounting Office auditors generalized from a particular situation. The Bureau of Reclamation offered service to the Air Force at the Rainbow substantion, 1½ miles from the air base, and at the standard Fort Peck project rate schedule. The Air Force desired service at the air base which would have required construction of 1½ miles of low-voltage line. Construction of the line would have been a departure from system-wide Departmental policy limiting service to customers at major Bureau substations. To federally construct the additional facility would have involved added investment, an inconsistency in established and well-known policy, and a dangerous precedent which in the long run could result in an over-all increase in Federal costs in serving preference-type customers far in excess of the amount of money involved in this instance. In addition, such action would not have improved public relations. The privately-owned utility owned a distribution line to the air base. The outcome in this case was that the Air Force rented the utility's line for $450 per month and contracted with the utility for energy at exactly the same price as the Fort Peck rate level—with a saving to the Air Force over the original company offer (before the Bureau of Reclamation was considered as a supplier) of $21,000 annually in the power bill. The Air Force expressed written appreciation to the Bureau of Reclamation for effectuating a saving in energy costs without investment outlay by the Federal Government.

9. Expenditures at Fort Peck project, Montana, not subject to annual congressional approval

As expressed in previous reports, the General Accounting Office feels that receipts of the project are available for expenditure without review or control by the Congress. It suggests that the Congress may wish to provide annual appropriations for power operations and, in addition, a reasonable amount as a continuing fund to defray emergency expenses and to insure continuous operation.

Comments.—The Department's previous response in this matter notes that the auditor's reports state that the permanent annual appropriation is not subject to Congressional review. Previous departmental response also indicates that this statement is not entirely factual from a budgetary standpoint. While the act of May 18, 1938 (52 Stat. 403, 16 U. S. C. 833), authorizes expenditures of revenue from the sale of electric energy at Fort Peck project without Congressional action, it should be noted that data on the program and financial status is clearly set out in the President's budget each year.

In accordance with requirements of Budget Bureau Circular A–11, "Instruction for Preparation and Submission of Annal Budget Estimates," the following statements are prepared reflecting actual data for the last completed fiscal year and estimates for the current and budget years and submitted to that Bureau:

1. Statement of sources and application of funds.
2. Statement of income and expenses.
3. Statement of financial condition.
4. Working capital changes.
5. Accrued expenditures by objects.
6. A narrative justification of work proposed in the budget year.
7. Program schedule is also furnished upon request.

These statements are reviewed in detail by Budget Bureau examiners and with the expection of items 4 and 6 above are printed in the President's United States Budget annually. Copies of the United States Budget are made available to all members of the Congress. In addition, the justification material submitted to the Appropriation Committees of the Congress included a statement on the Fort Peck project, including a comparison of the estimate of expenditures for the current and budget years.

Therefore, data is available for review and consideration by Appropriation Committees and other members of the Congress in connection with this project. The Congress has accepted such data and it is apparent that it is satisfied with the operation of the project as performed by the Bureau.

In addition, the Congress has by recent legislation authorized precisely the same procedures for the upper Colorado storage project as are now in practice on the Fort Peck project. It is a satisfactory acceptable and efficient procedure which in this case is being administered carefully and scrupulously by the Bureau of Reclamation. In recent years similar procedures have been adopted by other agencies with the approval of Congress.

10. Power revenues applicable to participating projects of the western division

The report notes that western division power revenue receipts allocated to participating projects are returned to the Treasury by the Missouri River Basin project, and that revenues are recorded as an investment account transaction as cost or property transferred to or from projects. It is recommended that formal fund transfers be made from Missouri River Basin project to each participating project to more accurately reflect financial status of each.

Comments.—Little is to be served by a detailed identification within the area of reclamation power activities of the source of receipts to the reclamation fund of the Treasury. Direct return by Missouri River Basin project, rather than roundabout return through the projects gain nothing from the standpoint of the reclamation fund accounting, and it would involve additional accounting. Net investment—the more useful and informative account on Reclamation's books than the total investment account—would remain exactly the same under either procedure. And under either procedure the financial status of participating projects is equally clear and complete.

11. Deposit of revenues of Corps projects into reclamation fund

The report states that receipts from the sale of power generated at the Fort Randall project constructed and operated on the main stem of the Missouri River by the Corps of Engineers are deposited by the Bureau of Reclamation to the credit of the reclamation fund. The Flood Control Act of 1944 (16 U. S. C. 825s), provides that moneys received from disposal of power generated at Corps projects shall be deposited in the Treasury of the United States as miscellaneous receipts.

Recommendation is made that the General Accounting Office be furnished with a citation or authority for depositing these receipts into the reclamation fund.

The question raised concerning the depositing of these receipts into the reclamation fund is under review by the solicitor's office. Upon receipt of a ruling on this matter, your office will be advised by separate letter.

12. Accounting and financial policies.

With respect to the recommendation contained on page 13 of the report, it can be stated that these matters, together with other pertinent problems, are receiving current consideration of the interior cost allocation and financial practices committee. Our views with respect to accounting and financial policies cannot be determined until such time as the committee's recommendations have been received and considered by the Department.

Suballocations of power investment.

Regarding the suballocation of the power investment between commercial power and irrigation pumping power, the report indicates that the construction of power facilities usually precede construction of irrigation facilities and during the interim the power to be used ultimately for irrigation is sold as "commercial power." The report continues that reservation of 20 percent of power capacity for irrigation will not be necessary until the irrigation construction catches up with the power development. It is stated further that the method used for the Bureau does not give adequate consideration to the factor of energy uses. The report points out that on the premise that irrigation pumping has first call on available energy and that firm energy can be provided for, irrigation pumping will use about 9.4 percent of the total electric energy. The report concludes that a method of suballocation that takes into consideration the lag in construction of irrigation facilities and the load characteristics of pumping demands would be more realistic. It suggests that the use of stages in construction development, 5 or 10 year periods for example, should provide such a method.

The suballocation of the power investment to reflect plant-in-service for commercial power and irrigation pumping power is based upon the ratio of simultaneous peak pumping demand in kilowatts to system dependable capacity after ultimate project development. This method rests upon the premise that a portion of the investment in power facilities is made to meet irrigation requirements; hence, a portion of the plant-in-service is reserved for irrigation use. Application of the auditors' recommendation will create technical problems in handling shifting investments in both payout studies and in accounting operations. This problem, however, has been recognized in the past and is receiving continuing study.

Accounting for accrued leave.

The report states that leave should be accrued and charged to costs as earned. The letter of October 6, 1950, to the Secretary of the Interior from the Comptroller General approving the accounting system for the Bureau of Reclamation states: "This problem of accounting for accrued leave is under consideration by this office for the Government as a whole. At the present time there is no legal authority to fund leave, i. e., to charge an appropriation account in a fiscal year for leave accrued but not taken." No advice has been received of the results of this study nor has any legal authority to fund leave been provided.

The lack of any legal authority to fund leave is of primary importance insofar as the Bureau is concerned. The project is the accounting entity and the Bureau policy is to obtain reimbursement from the project for expenditures made from reimbursable funds. As no provision may be made for funding accrued leave, expenditures for unliquidated accrued leave cannot be made from the project appropriations.

At the time the Bureau's uniform system of accounts was submitted to the Comptroller General for approval it was acknowledged by representatives of the General Accounting Office that the primary concern of that office was to see that a uniform method of costing leave was adopted by the Bureau. It was granted by such representatives that there were several methods of costing which would achieve this purpose.

The method suggested by the GAO would require an extremely close and constant check on the estimate of leave expense to be incurred. It would be very difficult to anticipate the leave expense in connection with construction activity and especially when construction was ending. Normally at such times there would be appreciable amounts paid in terminal leave. However, such is not always true. Furthermore, no purpose would be served by accrual of leave for nonreimbursable appropriations such as general administrative expense, soil and moisture conservation, and Colorado River development fund.

Other objections are (1) leave is liquidated at a rate different from that at which it was accrued whenever a change of pay occurs, (2) leave sometimes is not taken and lapses without liquidation, (3) leave is sometimes liquidated by some other agency when transfers out occur, and (4) leave is sometimes liquidated which was accrued from service with some other agency when transfers in occur.

The Bureau has adopted a policy of costing leave as taken by charge to clearing accounts with a periodic distribution on an equitable basis. It is believed this policy is satisfactory and meets the needs of the Bureau and requirements of law.

NOTE.—Items 4 and 5 under "Principal Findings and Recommendations" pertain to the Corps of Engineers and have not been replied to.

DEPARTMENT OF THE INTERIOR,
Washington 25, D. C., April 22, 1957.

Mr. A. T. SAMUELSON, *Director,*
Civil Accounting and Auditing Division,
General Accounting Office,
Washington 25, D. C.

DEAR MR. SAMUELSON: Your letter of November 8, 1956, referred to the then proposed General Accounting Office audit reports for fiscal year 1955 on the Missouri River Basin and the Central Valley Basin upon which the Department's comments had been requested and your letter reiterated a request for the Department's views on three specific matters. The three matters referred to were whether legislation was required to include to Fort Peck project as an integral part of the Missouri River Basin project in determining overall economic feasibility and payout, whether revenues from the sale of power generated at the Fort Randall development of the Corps of Engineers should be deposited in the reclamation fund, and a similar question with respect to revenues received in connection with contracts for irrigation service from Pine Flat Dam, a Corps of Engineers development of the Kings River in the Central Valley Basin of California.

In our letter to you of November 26, 1956, respecting the then proposed Missouri River Basin audit report for fiscal year 1955 we commented at some length regarding the status of the Fort Peck project in relation to overall Missouri River Basin economic studies, payout analyses, and average rate studies. We believe these comments dispose of any question of the Department's views on the necessity for

legislation. We have noted in this regard the general observation in footnote 2 at page 15 of the audit report as transmitted to the Congress on December 3, 1956, that the Department's comments of November 26 were received too late to be evaluated in the formulation of the findings and recommendations included in the audit report.

The comments contained in our letter of November 26 might be expanded by noting that the Missouri River Basin project economic analysis has, of course, been brought to the attention of the appropriate committees of the Congress and that the legislative committees have moreover taken cognizance of this analysis in reporting on legislation relating to the Missouri River Basin project. See in this connection the reports of the House and Senate Interior and Insular Affairs Committees on the legislation reauthorizing the Farwell unit of the Missouri River Basin project, Public Law 952, 84th Congress, approved August 3, 1956. The reports are identified as H. Rep. 2595 and S. Rep. 2532, 84th Congress, 2d session.

Accordingly and consistent with our comments of November 26, we do not view further specific legislation as necessary to the continued inclusion of the Fort Peck project in our economic analyses and payout studies as we have been doing.

The second inquiry concerns the question of the deposit of revenues from the sale of power generated at the Fort Randall project. The same issue is, of course, presented with respect to other Department of the Army projects in the Missouri River Basin which were authorized as a part of the overall Missouri River Basin project by section 9 of the Flood Control Act of 1944 (58 Stat. 891).

After further consideration of the question, we are inclined to agree that a portion of revenues from the sale of power of the Missouri River Basin project appropriately allocable to these Corps of Engineers developments should be deposited in the general fund of the Treasury to the credit of miscellaneous receipts.

We wish to make clear, however, that we do not premise this conclusion on the applicability to the Missouri River Basin project of the provisions of section 5 of the Flood Control Act of 1944, and in the light of the emphasis in the audit report as well as in your letters to section 5, we believe it desirable to make some comments thereon as well as to state our conclusions in relation to the narrower question relative to the deposit of revenues.

The audit report quite correctly notes that the undertakings of the Departments of the Interior and the Army dealt with in section 9 of the Flood Control Act of 1944 constitute interrelated, component parts of a single, integrated program (audit report, pp. 1 and 2; see also pp. 18–24). And the report likewise recognizes that basic to this program as authorized by the Congress is, of course, the application, against total project irrigation costs not returned from other sources, of power revenues, including revenues from Corps of Engineers generated power, in excess of the costs allocated to power (audit report, pp. 24, 47).

It has been the longstanding position of the Department that in proceeding to dispose of power from the Corps of Engineers developments authorized by section 9 of the 1944 act, as well as from the Bureau of Reclamation power developments therein authorized, and in the establishment of rate schedules and payout analyses the Bureau of Reclamation is proceeding under the authority of section 9 (c) of the 1944 act, which in turn provides for the applicability of the Federal reclamation laws on a basin-wide basis.

While the audit report and your letters, as above indicated, make reference to section 5 of the 1944 act in discussing this question and in certain other respects relative to the role of the Federal Power Commission, the audit report likewise refers to our position that section 9, rather than section 5, is the applicable provision of law. See, for example, pages 30, 32, and 104 of the audit report.

In these references, the patricular issue under discussion is the role of the Federal Power Commission in rate making in the Missouri River Basin and the report suggests that the Congress may wish to clarify the question of the applicability of sections 5 and 9 (c). It is, of course, the position of this Department that section 5 has applicability neither to the issue of the Department's responsibilities for rate making in the Missouri River Basin project nor to the issue of the deposit of revenues.

The question of the applicability of section 5 to the Missouri River Basin project was discussed in testimony before the Jones Committee (the subcommittee to study civil works of the House Public Works Committee) in its 1952 hearings. See Hearings No. 82–17, "Study of Civil Works," part 3, pages 399–400; 447–448; 504–505. The Jones Committee made no recommendations by way of legislation or otherwise on this point.

That the Department has consistently proceeded to establish rate schedules and market power in accordance with the requirements of the reclamation law in the Missouri River Basin project has long been a matter of record. We see no reason to conclude at this date that section 5 of the Flood Control Act is applicable.

While section 5 is not regarded as controlling on the issue of the deposit of power revenues from Corps of Engineers developments in the Missouri River Basin in our continued analysis of the provisions of section 9 of the Flood Control Act considered in the light of the authorizing reports and the provisions of the Federal reclamation laws respecting the deposit of revenues, we do not find a sufficiently firm basis for the deposit of such moneys into the reclamation fund. Accordingly revenues will be deposited in the general fund of the Treasury in accordance with allocation procedures and principles which the Department will develop. It might be observed in this connection that the determination of the basis for such distribution is itself a question of considerable complexity in view of the integrated nature of the projects, the extensive transmission plant constructed by the Bureau of Reclamation under reclamation law and other similar factors. It is, in this context, perhaps an oversimplification to approach the problem of apportionment in terms of revenues received from the marketing of energy developed at Corps of Engineers plants per se.

The third question relates to the deposit in the reclamation fund of revenues received in connection with contracts for irrigation service from Pine Flat Dam.

Pine Flat Dam is one of a number of Corps of Engineers developments from which the Bureau of Reclamation is now or will in the future dispose of irrigation benefits pursuant to the provisions of section 8 of the Flood Control Act of 1944 (43 U. S. C. 390).

As in the case of the Corps of Engineers power developments discussed in the answer to the second question, we fail to find in the Federal reclamation laws or in the pertinent authorizing documents a sufficiently clear basis whereunder revenues received in connection therewith (other than as they may relate in part to works constructed by the Bureau of Reclamation) may be deposited in the reclamation fund and such revenues will, therefore, be deposited in the general fund of the Treasury as miscellaneous receipts.

We regret the delay in responding to your requests and trust that the foregoing will clarify the position of the Department on the questions that have been raised.

Sincerely yours,

(Signed) D. OTIS BEASLEY,
Administrative Assistant Secretary.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SOLICITOR,
Washington 25, D. C., January 18, 1950.

M-36022
Memorandum.
To: The Secretary.
From: The Solicitor.
Subject: Power rates—Missouri River Basin project.

The Commissioner of Reclamation has submitted to the Secretary a "Report on Proposed Interim Rate Schedules for Missouri River Basin Project." The Commissioner has requested that the Secretary approve the five interim schedules contained in the report (Exhibit I–V) for use in a designated part of the area comprised within the Missouri River Basin project.

Former Secretary Krug asked me to consider the propriety of the proposed rate schedules from the legal standpoint.

The proposed schedules are based on rate studies for the purposes of which it has been assumed that a number of hydroelectric power plants (report, pp. 21, 22), with a given installed capacity, will be constructed in the Missouri River Basin pursuant to section 9 of the Flood Control Act of December 22, 1944 (58 Stat. 887, 891). Of the hydroelectric plants, five (Fort Randall, Gavins Point, Garrison, Oahe, and Big Bend) are to be constructed by the Corps of Engineers, Department of the Army, and one, the Fort Peck plant, is now in operation under the administration of the Corps of Engineers. (I shall hereafter refer to the hydroelectric plants at Fort Randall, Gavins Point, Garrison, Oahe, and Big

Bend as the "Army plants," and this term will not include the Fort Peck plant, which requires special consideration.)

One of the standards used in formulating the rates embraced in the proposed schedules is that the power revenues must be adequate to pay, inter alia, the "reimbursable irrigation costs" of the Missouri River Basin project "which cannot reasonably be repaid by water users or from other revenues" (report, p. 6). The employment of this standard assumes, of course, that the revenues from the sale of power generated at the Army plants and at the Fort Peck plant may properly be used, together with the revenues derived from the sale of power generated at plants constructed in the basin by the Bureau of Reclamation, for the purpose, among others, of meeting part of the reimbursable costs of the project allocated to irrigation. This is based upon the premise that the Department of the Army is required to turn over to the Department of the Interior for disposition all the power generated at the Army plants and at the Fort Peck plant, and not needed in the operation of those installations; and that the Department of the Interior, in the marketing of such surplus power, is governed by the provisions of the reclamation laws relating to this subject (43 U. S. C., 1946 ed., sec. 485h(c)).

The disposition of power generated at the Fort Peck project is governed by the provisions of the special legislation relating to that project, and revenues derived from the sale of such power are not available to meet reimbursable irrigation costs.

Section 5 of the Flood Control Act of 1944 governs the disposition of surplus power generated at hydroelectric plants constructed by the Corps of Engineers, Department of the Army, in the Missouri River Basin under section 9 of that act.

Revenues derived from the sale of power under section 5 of the Flood Control Act of 1944 cannot be used to meet any part of the reimbursable costs of a project which are allocated to irrigation.

The legal question raised by the assumption mentioned in the preceding paragraph is not one of first impression in the Department. It was considered in a memorandum dated September 30, 1946, from Assistant Chief Counsel Schwab of the Bureau of Reclamation to the director of the branch of project planning of the Bureau. Mr. Schwab expressed the opinion that revenues derived from the sale of power generated at the Fort Randall dam (one of the Army plants) could not be applied to the repayment of costs of the Missouri River Basin project allocated to irrigation. The memorandum made it clear that Mr. Schwab's conclusion applied to the revenues derived from the sale of power generated at any dam constructed by the Corps of Engineers in the Missouri River Basin under section 9 of the Flood Control Act of 1944, and to the Fort Peck power revenues as well. The chief counsel of the Bureau of Reclamation has stated that he concurred in Mr. Schwab's opinion when it was prepared, and that he has not altered his view. On the other hand, the regional counsel for region 6 of the Bureau of Reclamation has expressed a contrary view in a memorandum dated September 2, 1949.

Sections 5 and 9 of the Flood Control Act of 1944 (58 Stat. 887, 890, 891) are relevant to the question under consideration here. These sections provide as follows:

"SEC. 5. Electric power and energy generated at reservoir projects under the control of the War Department [now the Department of the Army] and in the opinion of the Secretary of War [now the Secretary of the Army] not required in the operation of such projects shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, the rate schedules to become effective upon confirmation and approval by the Federal Power Commission. Rate schedules shall be drawing having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the projects) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The Secretary of the Interior is authorized, from funds to be appropriated by the Congress, to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said projects available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government,

public bodies, cooperatives, and privately owned companies. All moneys received from such sales shall be deposited in the Treasury of the United States as miscellaneous receipts. [16 U. S. C., 1946 ed., sec. 825s.]

* * * * * * *

"SEC. 9. (a) The general comprehensive plans set forth in House Document 475 and Senate Document 191, Seventy-eight Congress, second session, as revised and coordinated by Senate Document 247, Seventy-eighth Congress, second session, are hereby approved and the initial stages recommended are hereby authorized and shall be prosecuted by the War Department and the Department of the Interior as speedily as may be consistent with budgetary requirements.

"(b) The general comprehensive plan for flood control and other purposes in the Missouri River Basin approved by the act of June 28, 1938, as modified by subsequent acts, is hereby expanded to include the works referred to in paragraph (a) to be undertaken by the War Department; and said expanded plan shall be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers.

"(c) Subject to the basin-wide findings and recommendations regarding the benefits, the allocations of costs and the repayments by water users, made in said House and Senate documents, the reclamation and power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the Federal reclamation laws (act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), except that irrigation of Indian trust and tribal lands, and repayment therefor, shall be in accordance with the laws relating to Indian lands.

"(d) In addition to previous authorization there is hereby authorized to be appropriated the sum of $200,000,000 for the partial accomplishment of the works to be undertaken under said expanded plans by the Corps of Engineers.

"(e) The sum of $200,000,000 is hereby authorized to be appropriated for the partial accomplishment of the works to be undertaken under said plans by the Secretary of the Interior."

Senate Document 191, which is referred to in subsection (a) of section 9, may be described generally as the detailed plan of the Bureau of Reclamation for the Missouri River Basin, and House Document 475 may be described as the plan of the Corps of Engineers for the basin. Senate Document 247 contains joint reports from the 2 agencies looking to the elimination of conflicts between the engineering features of the 2 plans.

A

I shall first consider the question whether revenues derived from the sale of power generated at the Army plants may be used to meet part of the reimbursable costs of the Missouri River Basin project allocated to irrigation. The matter of the power from the Fork Peck plant will be reserved for special consideration.

If the authority of the Secretary of the Interior to dispose of power generated at the Army plants is derived from section 5, then, for reasons which I shall give later, power revenues from these plants cannot, in my opinion, be used to meet any part of the reimbursable irrigation costs of the Missouri River Basin projects. If, on the other hand, the source of the Secretary's authority for the marketing of power generated at these plants is found in subsection (c) of section 9, a portion of the power revenues may, under the reclamation laws, be used for an irrigation subsidy (see 43 U. S. C., 1946 ed., sec. 485h (c)).

The language of section 5, if considered alone, seems to provide a ready solution for the problem mentioned in the preceding paragraph. The phraseology used by Congress to indicate the scope of the section is plain and unambiguous. The section clearly purports to cover the marketing of the surplus power generated at all reservoir projects under the control of the Department of the Army. No exceptions are provided for, either expressly or by implication. The Army plants in the Missouri River Basin will, of course, be parts of "reservoir projects under the control of the War [Army] Department" and, hence, clearly seem to be within the plain coverage of section 5.

However, a special statutory provision prevails over a provision dealing in general terms with the same subject as that covered by the special provision. *Kepner* v. *United States*, 195 U. S. 100, 125 (1904); *Missouri* v. *Ross*, 299 U. S. 72, 76 (1936). The question arises whether subsection (c) of section 9, in providing that the "power developments to be undertaken by the Secretary of the

Interior under plans shall be governed by the Federal reclamation laws," is a special provision covering the disposition of the surplus power generated at all plants constructed in the Missouri River Basin under section 9, including those constructed by the Army, thus removing the surplus power generated at the Army plants in the basin from the scope of the general language contained in section 5, or whether the only power covered by subsection (c) of section 9 is that generated at reservoir projects of the Bureau of Reclamation in the basin.

It will be noted in this connection that section 9 (a) approved "the general comprehensive plans" of the Corps of Engineers and the Bureau of Reclamation "set forth in House Document 475 and Senate Document 191, * * * as revised and coordinated by Senate Document 247 * * *." The plan of the Bureau of Reclamation set out in Senate Document 191 clearly contemplated that the bureau would be the marketing agent for the surplus power generated at all the plants included in the plan, whether the plants and reservoirs might be constructed by the bureau or by the Corps of Engineers.

On the other hand, the plan of the Corps of Engineers contained in House Document 475 proposed (p. 4) that "Plans for the production, transmission, and sale of hydroelectric power should be worked out with the cooperation of the Federal Power Commission." Senate Document 247, the document revising and coordinating the previous plans of the two agencies, was silent on the matter of which proposal respecting the sale of surplus power from the Army plants in the basin should be adopted. In the light of this background, section 9 (c) does not itself provide a clear answer to the question whether Congress, in declaring that "power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the Federal reclamation laws," was legislating only with respect to the generation, transmission, and sale of surplus power from the plants of the Bureau of Reclamation in the Missouri River Basin, or intended also to encompass the marketing of surplus power from the Army plants in the basin.

Since the plain and inclusive language used by Congress in section 5 clearly covers in general terms the sale of surplus power from all Army reservoir projects, including the Army plants in the Missouri River Basin, whereas the ambiguous reference in section 9 (c) to "power developments to be undertaken by the Secretary of the Interior under said plans" does not expressly refer in clear language to the marketing of surplus power from the Army plants in the basin, I do not believe that section 9 (c) should be regarded as a special provision applying to the disposition of surplus power generated at Army plants constructed in the Missouri River Basin under the Flood Control Act of 1944 and necessarily excepting such power from the general provisions of law (i. e., sec. 5) applicable to the marketing of surplus power generated at Army reservoir projects elsewhere.

Accordingly, when House Document 475, Senate Document 191, Senate Document 247, and the first three subsections of section 9 are considered together, it appears that subsection (a) of section 9 was intended only to allocate the construction of the several parts of the Missouri River Basin project between the Bureau of Reclamation and the Corps of Engineers; that subsection (b) was intended to apply to the parts of the project which were to be constructed by the Corps of Engineers; and that subsection (c) was confined to the parts of the project which were to be constructed by the Secretary of the Interior. Under this view, subsection (c) has no applicability to the marketing of surplus power from the Army plants in the basin, and that subject is covered elsewhere in the act (i. e., in sec. 5).

The meager portion of the legislative history of the Flood Control Act of 1944 that is pertinent to the issue under consideration here supports the view that section 5 is applicable to the marketing of surplus power from all Army reservoir projects constructed under that act, irrespective of where they may be situated and including, of course, the Army plants in the Missouri River Basin.

The bill which became the Flood Control Act of 1944 was H. R. 4485, 78th Congress. Both sections 5 and 9 were added to the bill by amendments made in the Senate. Section 5 was the result of a committee amendment; section 9 resulted from an amendment made on the floor of the Senate. Neither the committee report nor the debate in the Senate throws any light on the problem with which we are concerned. However, when the conference report on the bill was before the House, the following significant colloquy took place between Congressman Whittington, who was in charge of the bill, and Congressman Rankin regarding the Senate amendment that is now section 5 (90 Cong. Rec. 9282, 9283):

"Mr. RANKIN. Now, right on that point I want to ask the gentleman another question. I thoroughly agree with that principle because it is fundamentally

sound. That provision applies to all projects provided for in the bill where power is to be generated, does it?

"Mr. WHITTINGTON. Wherever generated by the War Department.

"Mr. RANKIN. All projects provided for in this bill?

"Mr. WHITTINGTON. That is, that are constructed by the War Department. There may be in some of the reclamation projects power developed that will be disposed of in accordance with existing reclamation law.

"Mr. RANKIN. Now, right there is one trouble we are up against. The cooperative power associations are having to pay higher rates for power generated at dams built by the Bureau of Reclamation than they are paying at other dams constructed by the Federal Government. I wondered why an exception was made as to them.

"Mr. WHITTINGTON. We have made no exception. This bill deals with projects that are constructed by the Corps of Engineers. We have limited our amendment, and I think properly, to those projects.

"Mr. RANKIN. This applies to all proposed projects on the Missouri River, as I understand?

"Mr. WHITTINGTON. Yes; to be constructed by the Chief of Engineers.

"Mr. RANKIN. And also on the Connecticut River?

"Mr. WHITTINGTON. Yes; to be constructed by the Chief of Engineers.

"Mr. RANKIN. In other words, at all projects provided for in this bill, which generate electricity, the electricity is to be turned over to the Department of the Interior to be distributed to public bodies, which, of course, includes municipal bodies which own their own facilities—I presume that is right, is it not?

"Mr. WHITTINGTON. Yes; to facilities owned by the Federal Government, public bodies, cooperatives, and privately owned companies.

"Mr. RANKIN. In other words, all public bodies, whether owned by the Federal Government, cooperative power associations, or municipally owned systems, are to be able to purchase this power at such a rate as will amortize only that part of the development charged to power. That is correct, is it not?

"Mr. WHITTINGTON. That is true with respect to all projects constructed by the Chief of Engineers.

"Mr. RANKIN. In other words we do not propose to unload onto the power consumers the costs of flood control, navigation, and reclamation?

"Mr. WHITTINGTON. Not at all. I may say further in answer to the gentleman's question, there is preference to the public bodies and cooperatives in this bill and in this agreement, just as there is in the existing law passed by this body on the disposal of power at Bonneville."

Thus, the point now before us was squarely raised in the Congress, and the manager in charge of the bill on the floor of the House stated unequivocally that section 5 would govern the disposition of suplus power generated at all Army plants provided for in the bill, including those on the Missouri River. I do not believe that this Department should take a contrary position in administering the provisions of section 5.

B

As I stated earlier in this memorandum, revenues derived from the sale of power under section 5 cannot, in my opinion, be used to meet any part of the reimbursable costs of a project which are allocated to irrigation.

Section 5 directs the Secretary of the Interior to "transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles," and, in drawing rate schedules, to have "regard to the recovery * * * of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years." As I read these mandates, the Secretary is required to fix the rates at the minimum figures which will return the costs incident to the operation of the power facilities and permit amortization of the capital investment in such facilities within a reasonable period. This statutory requirement leaves no room for the adoption of an additional standard in the formulation of rates—such as the use of power revenues to meet part of the reimbursable costs of a project which are allocated to irrigation.

Furthermore, section 5 expressly requires that revenues derived from the sale of power under this section shall be deposited in the Treasury as miscellaneous receipts. This is clearly inconsistent with any proposal looking toward

the adoption, by administrative action, of a plan for the use of power revenues under section 5 as an irrigation subsidy.

C

The construction and operation of the dam, power plant, and appurtenant works at Fort Peck, and the distribution of the surplus power generated at this plant, are covered by special statutory provisions clearly and expressly applying to this project alone (16 U. S. C., 1946 ed., ch. 12C). Hence, both section 5 and section 9 (c) of the Flood Control Act of 1944 are inapplicable to the marketing of the surplus power from Fort Peck. See *Kepner* v. *United States, supra; Missouri* v. *Ross, supra.*

The special legislation relating to Fort Peck provides that the surplus power generated at this project shall be delivered by the Corps of Engineers to the Bureau of Reclamation for disposition (16 U. S. C., 1946 ed., sec. 833). However, the Bureau is not subject to the reclamation laws in the marketing of Fort Peck power and the use of the proceeds from this activity. On the contrary, the Fort Peck legislation specifically covers these subjects, and the provisions relating to power rates and the disposition of power revenues (16 U. S. C., 1946 ed., secs. 833d, 833e, 833i) are similar to those of section 5 of the Flood Control Act of 1944.

Accordingly, for the reasons stated in part B of this memorandum, it is my view that revenues derived from the sale of power generated at Fort Peck are not available to meet any part of the reimbursable irrigation costs of the Missouri River Basin project.

D

I am constrained, therefore, to concur in the conclusions reached by Assistant Chief Counsel Schwab in his memorandum dated September 30, 1946, and to regard the proposed schedules of interim rates as unsound from the legal standpoint insofar as they rest upon the assumed availability of power revenues from the Army plants and the Fort Peck plant to meet part of the reimbursable costs of the Missouri River Basin project allocated to irrigation.

MASTIN G. WHITE, *Solicitor.*

BILLINGS, MONT., *September 2, 1949.*

[Air mail, blue envelope]

To: Chief Counsel.
From: Regional Counsel.
Subject: Establishment of power rates—Missouri River Basin project.

1. Please refer to your air mail, blue envelope letter of August 29, 1949.
2. Enclosed is the original of my memorandum of September 2, 1949, for submission to the solicitor. A copy is also enclosed for you.

W. J. BURKE.

BILLINGS, MONT., *September 2, 1949.*

MEMORANDUM RE ESTABLISHMENT OF POWER RATES—MISSOURI RIVER BASIN PROJECT

1. There has been prepared by the Bureau of Reclamation for submission to the Secretary of the Interior a "Report on Proposed Interim Rate Schedules for Missouri River Basin Project." The Commissioner of Reclamation recommends that the Secretary "approve the rate schedules contained in the * * * report for use by the Bureau of Reclamation in the marketing of Missouri River Basin project power in the market area generally described as North and South Dakota, central and eastern Nebraska, western Iowa, and western Minnesota."

2. The report is based on the theory that section 5 of the Flood Control Act of 1944 (58 Stat. 887) has no application to the electricity developed at the reservoir units of the Missouri River Basin project under the control of the Department of the Army. As a corollary, the report is a recognition, administratively, the the principle that the revenues earned by all of the electric plants of the Missouri River Basin project shall be used to amortize the reimbursable cost of the project, particularly the parts of the estimated cost of the units of the project under the control of the Department of the Interior that are beyond

the repayment ability of their beneficiaries, and, in addition, to amortize the part of the estimated project cost properly allocable to electric power. The chief counsel, Bureau of Reclamation, says the theory of the report and its corollary are unsound as to the legal aspect. The regional counsel, Region VI, Bureau of Reclamation, says they are not. Of the issues, and as to public policy, the soundness of the administrative interpretation of the Flood Control Act of 1944 is the narrower; the support for the corollary is the broader.

3. The question for debate pertains to public policy—a political question.

(*a*) A congressional enactment to govern the development and uses of natural resources is the written expression of the will of the people as to a desirable public policy (Millett, The Process and organization of Government Planning (1947) at p. 11).

(1) The Flood Control Act of 1944 is a declaration of public policy respecting the Nation's rivers, it being so declared in section 1 and, as will be shown later, by the approval of the Congress of its own plan for the Missouri River Basin.

b. In administering section 9 of the Flood Control Act of 1944 to carry out its public policy, the Secretary of the Interior acts as a "political or confidential agent" of the President and his act is "only politically examinable." *Marbury* v. *Madison*, 1 Cranch 137. (The Secretary of the Army is also an administrator but his acts are not presently relevant.)

(1) Political examination is had, in the first instance, by proper congressional committees, then by the Congress, and, ultimately, by the American electors.

4. The possibility of the question for debate developing as a justiciable question is remote. *Massachusetts* v. *Mellon*, 262 U. S. 447.

5. Assuming, for the purpose of argument, that the question for debate is justiciable, then the Secretary of the Interior must be prepared in a judicial proceeding to offer more in defense of his administrative interpretation of the Flood Control Act of 1944 than the interpretation of his legal staff; the opinion, at most, being evidentiary.

a. The opinion of an attorney for an administrator as to an administrative interpretation is not, in a judicial proceeding, an official interpretation of the administrator, *Bowles* v. *Dairymen's League Co-op. Ass'n.* 61 F. Supp. 358 (D. C., S. D. N. Y); and, while it is persuasive, it is not binding on the administrator, *Bowles* v. *Fruit Growers Co-op.*, 61 F. Supp. 745 (D. C., E. D. Wis.)

b. The meaning of a legislative act may not be sought "in the purely legal interpretation by the administrator's legal staff" because, among other reasons, of "the powerful position he *properly* stands in, of administrator for the Congress of one of its laws" [Emphasis supplied.] *Fleming v. Belo Corp.*, 121 F. 2d 207 (C. C. A. 5th).

6. The strongest support, in a judicial proceeding, of the Secretary of the Interior's administrative interpretation of the Flood Control Act of 1944 is evidence showing that he acted "with the advice of a staff specializing in its interpretation and *application*." [Emphasis supplied.] *Overnight Motor Transportation Co.* v. *Missel*, 316 U. S. 572, 580, 86 L. ed. 1682 note 17; *Nobel* v. *United States*, 319 U. S. 88; *Colgate Co.* v. *United States*, 320 U. S. 422; *National Labor Relations Board* v. *Hearst Publications*, 322 U. S. 111.

a. The staff report here involved is such evidence.

(1) As to the legal aspect, there is contrariety of opinion between the chief counsel's immediate staff and the regional counsel, Region VI.

(a) Thus, the chief counsel is in the position of having a legal opinion, from his staff, but with no expert witnesses on the Commissioner's staff to supply the factual support.

(b) That such factual support, an important factor of the advice of a staff specializing in "interpretation and application," is not available is strongly evidenced by the fact that the nonlawyer members of the Commissioner's staff did not accept in the preparation of the staff report the legal opinion of the chief counsel's staff, first given orally August 28, 1946, and confirmed in writing September 30, 1946.

7. As to the legal aspect of the staff report there is this question: Is the Missouri River Basin project one project or a series of separate projects?

a. The chief counsel's immediate staff assumes the Missouri River Basin project is a series of separate projects.

8. The series-of-separate-projects concept is a fallacy.

a. It is not supported by the legislative history of the Flood Control Act of 1944.

b. It is not supported by the Flood Control Act of 1944.

c. It is contrary to the administrative construction and practice of the Interior Department.

d. It is not supported by the Congress in enacting the Interior Department appropriation acts.

9. The series-of-separate-projects concept is not supported by the legislative history of the Flood Control Act of 1944.

a. The Department of the Army (War Department), pursuant to section 1 of the Rivers and Harbors Act of 1927 (44 Stat. 1010), and section 10 of the Flood Control Act of 1928 (45 Stat. 534, 538), submitted to the Congress the series of reports, popularly known as the 308—Reports, setting forth a general comprehensive program for flood control and other purposes in many of the Nation's river basins. Of the series, H. Doc. 238, 73d Congress, 2d session, related to the Missouri River Basin. This program was approved by the Congress in the Flood Control Act of 1938 (52 Stat. 1215, 1218). On May 13, 1943, the Committee on Flood Control, House of Representatives, adopted a resolution.

"That the Board of Engineers for Rivers and Harbors, created under section 3 of the River and Harbor Act approved June 13, 1902, be and is hereby requested to review the reports on the Missouri River contained in House Document No. 238, Seventy-third Congress, second session, and House Document 821, Seventy-tixth Congress, third session, with a view to determining whether any modification should be made therein at this time with respect to flood control along the main stem of the Missouri River from Sioux City, Iowa, to its mouth."

This request was complied with and the resulting report became H. Doc. 475, 78th Congress, 2d session. The Department of the Interior, by the Bureau of Reclamation, pursuant to section 9 of the act of August 4, 1939 (53 Stat. 1193), developed a comprehensive plan for the full conservation, control, and use of the water resources of the Missouri River Basin. This plan became S. Doc 191, 78th Congress, 2d session. The initial action of the 78th Congress, 2d session, on the Missouri River Basin development was taken on H. R. 4485. In May and June 1944, extensive hearings before the Committee on Flood Control, House of Representatives, and the subcommittee, Committee on Commerce, United States Senate, were held. Although neither committee had jurisdiction over S. Doc. 191, it was presented to each for consideration in connection with H. R. 4485, and Department of Interior officials appeared before each committee to explain S. Doc. 191 in its relation to H. Doc. 475. A related bill was H. R. 3961 adopting and authorizing works of improvement:

"Missouri River between Sioux City, Iowa, and the mouth; House Document No. 214, Seventy-sixth Congress: *Provided*, That such improvement when accomplished shall not create any demand on the water resources of the Missouri Basin over that now authorized by existing law;"

By this bill, it was sought to secure a 9-foot navigation channel between Sioux City and the mouth of the Missouri. H. R. 4485 and H. R. 2961, in relation to S. Doc. 191, presented a conflict in the use of the Missouri River waters, particularly between irrigation and navigation. A sharp controversy developed.

b. From the hearings before a subcommittee of the Committee on Commerce, United States Senate, 78th Congress, 2d session, on H. R. 4485, and the hearings before the same committee of that Congress on H. R. 3961, the following comparison is made of the H. Doc. 475 plan, popularly known as the Pick plan, and the S. Doc. 191 plan, popularly known as the Sloan plan:

(1) Each plan was a general comprehensive plan; neither was offered as the ultimate plan.

(2) The Sloan plan was not necessarily more comprehensive but its greater detail created, in some instances, conflicts with the Pick plan.

(a) It was more detailed as to the Upper Missouri Basin but it did not conflict with the Pick plan.

(b) It was more detailed as to the Yellowstone River Basin and conflicted as to some of the reservoir units with the Pick plan.

(c) It was in sharp conflict with the Pick plan as to the Missouri River, Fort Peck to Sioux City.

(d) It was more detailed as to minor western tributaries but it is did not conflict with the Pick plan.

(e) It was more detailed as to the Niobrara, Platte, and Kansas Rivers and it did conflict with the Pick plan as to several reservoir units.

(f) It was identical as to the lower Missouri Basin with the Pick plan.

c. The Pick plan, but not the Sloan plan, was before the Congress for authorization in H. R. 4485, 78th Congress, 2d session.

(1) The Sloan plan was presented in May and June 1944 to the subcommittee of the Committee on Commerce, United States Senate, as a comprehensive plan in contrast to the Pick plan.

(a) In the presentation of the Sloan plan the importance of water for irrigation in the Western States, particularly the Missouri Basin, was emphasized.

(i) The Pick plan, it was alleged, did not give the use of water for irrigation its proper value.

(ii) The Pick plan, it was alleged, did not accord proper recognition to the laws of the Western States governing water rights.

(2) The Corps of Engineers met the opposition to the Pick plan by cooperating and collaborating in the preparation of amendments to H. R. 4485 designed to (a) allay the fears of the irrigation proponents and (b) win authorization of the Pick plan.

d. The Sloan plan was before the Congress for authorization in S. 1915, 78th Congress, 2d session.

(1) The plan was examined by a Subcommittee on Irrigation and Reclamation, United States Senate, on September 26 and October 2, 1944.

e. Before either the Pick plan or the Sloan plan was authorized by the Congress the plans were revised and coordinated on October 17, 1944, by representatives of the Corps of Engineers and the Bureau of Reclamation.

(1) The revising and coordinating report was submitted on October 25, 1944, by the Commissioner of Reclamation and the Chief of Engineers to the Secretaries of Interior and of War.

(2) The report was presented to the Congress by Senator O'Mahoney on November 21, 1944, and it became S. Doc. 247, 78th Congress, 2d session.

(Attached as Exhibit A is a table showing (a) the comparison of the two plans and (b) the revised and coordinated plan.)

f. While the revised and coordinated plan was submitted to the Secretaries of Interior and of War, it does not appear that either Secretary gave his formal approval: (See p. 22, pt. 3, hearings, subcommittee, Committee on Appropriations, House of Representatives, 79th Congress, 1st sess., Interior bill, 1946.)

g. Approval of the plan of the Congress for the Missouri River Basin development was not given in the language of either H. R. 4485 or in the language of S. 1915, but in the language of section 9 of the Flood Control Act of 1944 (58 Stat. 887); and the conclusion is compelled that the Missouri River Basin project is not a series of flood control projects under the control of the Army and a series of reclamation projects under the control of the Department of the Interior with power developments incidental to each of the projects, but that the Missouri River Basin project is one project developed by the Congress with the assistance of the experts of the Pick and Sloan plans and the assistance of the experts who revised and coordinated those plans into the general comprehensive plan approved in section 9 (a) of the Flood Control Act of December 22, 1944. In short the Missouri River Basin project is a plan of the Congress and not separate plans of the Departments of Interior and of the Army (Cong. Rec., vol. 90, No. 164, pp. 8607–8724, Nov. 28, 1944, and vol. 90, No. 574, pp. 9414–9415, Dec. 12, 1944).

(Attached as Exhibit B is the Missouri Basin provision in H. R. 4485 to authorize the Pick plan and S. 1915 to authorize the Sloan plan.) (The fact that the Congress designated the Departments of the Interior and of the Army (War) as joint administrative agencies is nothing new. The Panama Canal was a joint public endeavor of two independent agencies, the Engineering Corps of the Army and the Army Medical Corps—perhaps the Public Health Service. Colonel Gorgas, the doctor, was as important to the objective obtained as Colonel Goethals, the engineer.)

16. The series-of-projects concept is not supported by the Flood Control Act of 1944.

a. The Sloan plan was a one-project plan. This is clearly evidenced by Sloan's testimony on S. 1915:

"The plan must be considered as one project for the whole basin. Any time you break it down into individual projects and try to consider the economic values of a particular project you run into trouble in allocating the benefits of those various large multiple-purpose features of the plan." (At p. 40, hearings, subcommittee, Committee on Irrigation and Reclamation, U. S. Senate, 78th Cong., 2d sess.)

Also by the Board of Review's report to the Commissioner of Reclamation at pp. 10–16 of S. Doc. 191 (attached as Exhibit C).

b. The Pick plan was a one-project plan. This is clearly evidenced by H. Doc. 475, particularly paragraphs 45, 46, and 47 at pages 28 and 29 of H. Doc. 475 (attached as Exhibit D).

c. The revision and coordination of the two plans by section 9 (a) of the act simply resulted in a new version of the one-project plan envisioned by both Pick and Sloan.

d. The one-project plan having been approved by the Congress, it was, of course, desirable to fit into that plan the comprehensive plan for flood control and other purposes in the Missouri River Basin approved by the act of June 28, 1938 (52 Stat. 1215, 1218), and this was accomplished by section 9 (b) of the act.

e. Section 9 (c) of the act does not negate the one-project plan. The solution of the problem of distributing the electric power to be developed by the project firmly supports this conclusion. Among the findings of the Board of Review was:

"The low-cost power to be developed should be given the widest possible distribution for the benefit of the whole region. This could be accomplished best by clothing the Bureau of Reclamation with the responsibility for its distribution and sale. Preference in sales should be given to public bodies and cooperatives" (S. Doc. 191, p. 12).

Among the recommendations of the Board was:

"That the Bureau of Reclamation under the direction of the Secretary of the Interior make all arrangements for the sale and distribution of electric energy generated at all hydroelectric developments hereafter constructed by any Federal agency within the basin as defined in the report, and be authorized to construct, operate, maintain, and improve such electric transmission lines and substations as it finds necessary or desirable in connection therewith" (S. Doc. 191, p. 16).

At no time during the presentation to the Committee on Flood Control of the House of Representatives and to the Subcommittee of the Commitee on Commerce of the United States Senate of the Pick and Sloan plans was there any opposition to the finding and recommendation of the Board of Review respecting the sale and distribution by the Department of the Interior of the electric energy generated at all hydroelectric developments of the project. On the contrary, the Corps of Engineers, to meet the opposition of the irrigation interests to the Pick plan and to win approval of that plan, cooperated and collaborated in the preparation of amendments to H. R. 4485, one of which became section 5 of the Flood Control Act of 1944. Hence, it is clear that the "power developments to be undertaken by the Secretary of the Interior," referred to in section 9 (c) of the act, mean the arrangements for the sale and distribution of electric energy generated at all hydroelectric developments of the project, such developments to be governed, insofar as administratively practicable, by the Federal reclamation laws. And it is further clear from the legislative history of the act that section 5, insofar as it relates to the Missouri River Basin project, simply shows the acquiescence of the proponents of the Pick plan in the feature of the Sloan plan that the electric energy generated at all hydroelectric developments of the project should be accomplished by the Department of the Interior, to the end that low-cost power could be provided for the widest possible distribution for the benefit of the whole region; and to the further end that substantial contributions from power revenues could be had to assist in the repayment of other project features, as well as provide low-cost power for irrigation pumping purposes. On the legislative history of H. R. 4485, the Secretary of the Interior has the same authority under the language of section 9 (c) of the act as he has under section 5 of the act, assuming that section 5 was not enacted. The enactment of section 5 simply clothes the Secretary of the Interior with the same authority for the distribution and sale of electric energy developed at dams under the control of the Army as he has in the Missouri River Basin project under section 9 (c) without the aid of section 5. In short, section 5, working companionately with section 9 (c), permits the Secretary of the Interior to distribute the project electricity into areas that might be considered outside the geographical limits of the project, and to bring into the project area electricity generated at dams under the control of the Army without the project. (The use of the words "plan" and "plans" in section 9 of the Flood Control Act of 1944 is not considered significant as a refutation of the one-project concept because the legislative history of the act so clearly shows such concept as the legislative intent. 50 Am. Jur., Statutes, sec. 256).

11. The series-of-projects concept is not supported by the administrative construction and practice of the Interior Department.

a. In presenting the program for the Missouri River Basin to the subcommitteetee of the Committee on Appropriations, House of Representatives, 81st Congress, 1st session, on the Interior Department appropriation bill for 1950, Assistant Secretary of the Interior Warne made it clear that the program was based on the 1-project concept. Other like statements have been made by Mr. Warne. (Attached as Exhibit E are Assistant Secretary Warne's statements.)

b. It has been the administrative practice of the Department of the Interior since the enactment of the Flood Control Act of 1944 to present to the budget and to the appropriation committees of the Congress justifications on the 1 project concept. This practice is a matter of public record; the people know it.

12. The series-of-projects concept is not supported by the Congress in enacting the Interior Department appropriation acts.

a. The appropriation acts carry the item "Missouri River Basin" and the appropriation is always a lump sum, rather than an itemized appropriation for any particular "project" in the Missouri River Basin. Act of July 3, 1945 (59 Stat. 318); act of July 1, 1946 (60 Stat. 348); act of July 25, 1947 (61 Stat. 460); act of July 31, 1947 (61 Stat. 695); act of June 29, 1948 (62 Stat. 1112).

13. To construe section 5 of the Flood Control Act of 1944 as applicable to section 9 of the act, in effect, repeals section 9 by implication, or at least makes its administration by the Secretary of the Interior ineffective as to a large area of the Missouri River Basin.

a. Assuming that section 5 of the act is applicable to section 9, then by induction this principle is established: All sections of the act are applicable to section 9. Now, with this principle as a middle term, two syllogisms can be deduced:

The act contains section 6. All sections of the act are applicable to section 9. Therefore, section 6 is applicable to section 9.

The act contains section 8. All sections of the act are applicable to section 9. Therefore, section 8 is applicable to section 9.

(Of course, section 1 of the act is applicable to section 9 as it is to all other projects approved in the act, of which there are many, and as it is, because of incorporation by reference, to the projects authorized in the act of July 24, 1946 (Public Law 526, 79th Cong., 2d sess.).)

What are the consequences? The gigantic reservoir units on the main stem of the Missouri are under the control of the Army. Hence, the Secretary of the Army is "to make contracts with States, municipalities, private concerns, or individuals, at such prices and on such terms as he may deem reasonable, for domestic and industrial uses for surplus water that may be available at any reservoir under the control of the War Department." (sec. 6). The Secretary of the Army "determines, upon recommendation by the Secretary of the Interior that any dam and reservoir project operated under the direction of the Secretary of War [Army] may be utilized for irrigation purposes." And, then, after the Secretary of the Interior has made feasibility report to the Congress under the Federal reclamation laws, and after "specific authorization of the Congress by an authorization act," he can construct, operate, and maintain the necessary irrigation works to use the Army storage (sec. 8). These consequences, in effect, repeal section 9 of the act by implication, or at least make its administration by the Secretary of the Interior ineffective, in northeastern Montana and North and South Dakota. Thus, the Sloan plan is destroyed and the Pick plan is vitiated. The revision and coordination accomplished by the Congress in the Flood Control Act of 1944 becomes a legislative ghost.

14. On May 18, 1938, Congress enacted the Fort Peck Project Act (52 Shat. 403). This act was for the transmission and sale of electric energy generated at the Fort Peck project. It clothed the Bureau of Reclamation of the Department of the Interior with the authority to transmit and sell the electric energy. Section 2 of the act provides:

"* * * The form of administration herein established for the Fort Peck project is intended to be provisional pending the establishment of a permanent administration for Fort Peck and other projects in the Missouri River Basin."

The Fort Peck project is in the Missouri River Basin. Section 9 of the Flood Control Act of 1944, as contemplated by section 2 of the Fort Peck Act, establishes a permanent administration for the development of the Missouri River Basin. Therefore, the Fort Peck project is now a part of the Missouri River Basin project.

The consequences are: Both the Fort Peck storage and the Fort Peck power are assets of the Missouri River Basin project. That such was intended in the one-project concept is clear from the testimony of Sloan at page 36 of the hearings

before a subcommittee of the Committee on Irrigation and Reclamation, United States Senate, 78th Congress, 2d session, on S. 1915:

"Coming down to North Dakota, we have had problems there similar to those in the upper region, in that we have had to make a selection of the area to be irrigated, limited by the amount of water which we thought could safely be taken without too much interference with the use of water in other States lower down. We provide in North Dakota for the irrigation of some 1,600,000 acres, most of which is in a territory in which irrigation has not been practiced heretofore, but because of the precarious agriculture in the region, due to average scanty rainfall it is obvious that irrigation will be necessary and should be carried on. This 1,600,000 acres will be irrigated by the use of the Fort Peck reservoir which was primarily constructed for navigation but the benefits from which can be used to much greater advantage for irrigation inasmuch as we substitute other reservoirs down the stream to take care of the navigation requirements supplied by Fort Peck. By using Fort Peck Reservoir we irrigate some 330,000 acres in Montana below that reservoir and 1,000,000 acres in North Dakota, the remaining acreage in North Dakota to be irrigated on the tributaries, such as the Heart, the Knife, and the Cannonball, and by pumping directly from the Missouri on the lowlands along the river.

"We do not use all of the capacity of Fort Peck for this development. Of the total of 18,000,000 acre-feet capacity, 10,000,000 acre-feet will remain to supplement the navigation requirements in the lower region. The balance would be used for the development of power and diversion to the large Missouri-Souris project. The canal takes out below Fort Peck and diverts to a reservoir in Montana out of which we pump to lift the water over the divide into the Dakota lands. The return flow from all of those lands is gathered in the Souris River and diverted to the Sheyenne and James Rivers in North Dakota for several purposes, one of them to restore the level of Devils Lake, which is a large recreational and fishing lake which has been in existence in North Dakota prior to the last 20 years and has been gradually depleted, decreasing in size until it has virtually disappeared."

15. If section 5 of the Flood Control Act of 1944 is applicable to section 9 of that act, then it becomes a lawyer's scalpel to sever from the development of the Missouri River Basin eastern Montana and North and South Dakota. The Missouri River compromise of October 25, 1944, is a historical failure.

16. I respectfully submit that the theory of the "Report on Proposed Interim Rate Schedules for Missouri River Basin Project," that section 5 of the Flood Control Act of 1944 is not applicable, and its corollary, as stated at page 1, are sound as to the legal aspect.

17. Approval of the interim rate schedules as recommended by the Commissioner of the Bureau of Reclamation is advised.

W. J. BURKE,
Regional Counsel, Bureau of Reclamation, Region VI.

EXHIBIT A

Missouri River Basin

Subdivisions	H. Doc. 475 plan	S. Doc. 191 plan
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Upper Missouri River Basin.	Units not designated, but those desirable and necessary provided for.	Brenner Reservoir, 15,000 acre-feet. Clark Canyon Reservoir, 150,000 acre-feet. Landon Reservoir, 15,000 acre-feet. Kelly Reservoir, 5,000 acre-feet. Apex Reservoir, 3,000 acre-feet. Terry Reservoir, 10,000 acre-feet. Whitetail Reservoir, 6,000 acre-feet. Taylor Reservoir, 20,000 acre-feet. Bridger Reservoir, 16,000 acre-feet. Canyon Ferry Reservior, 2,000,000 acre-feet. Wells Reservoir, 2,600 acre-feet. Nilan Reservoir, 10,000 acre-feet. Newland Reservoir, 10,000 acre-feet. Tiber Reservoir, 915,000 acre-feet. Wilson Reservoir, 160,000 acre-feet. Stanford Reservoir, 3,000 acre-feet. Hobson Reservoir, 10,650 acre-feet. Ross Fork Reservoir, 6,700 acre-feet. Snowy Reservoir, 3,000 acre-feet. (For flood control, silt control, power, irrigation of 460,900 acres new lands, 208,700 acres supplemental water.
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Upper Missouri River Basin.	----------	Adopted because of more detailed study and of no conflict in plans.
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Yellowstone River Basin....	Boysen Reservoir, 3,500,000 acre-feet. Lower Canyon Reservoir, 2,250,000 acre-feet. (Each for flood control, irrigation, navigation, power, and other purposes.)	Boysen Reservoir, 730,000 acre-feet. Mission Reservoir, 890,000 acre-feet. Kane Reservoir, 750,000 acre-feet. Yellowtail Reservoir, 470,000 acre-feet. DuNoir Reservoir, 220,000 acre-feet. Raft Lake Reservoir, 41,000 acre-feet. Soral Creek Reservoir, 25,000 acre-feet. Onion Flat Reservoir, 9,000 acre-feet. Badwater Reservoir, 7,500 acre-feet. Oregon Basin Reservoir, 150,000 acre-feet. Anchor Reservoir, 15,000 acre-feet. Lake Solitude Reservoir, 7,000 acre-feet. Red Gulch Reservoir, 13,000 acre-feet. Little Horn Reservoir, 50,000 acre-feet. Antelope Reservoir, 9,000 acre-feet. Sweetgrass Reservoir, 12,000 acre-feet. Hunter Mountain Reservoir, 150,000 acre-feet. Thief Creek Reservoir, 130,000 acre-feet. Sunlight Reservoir, 40,000 acre-feet. South Fork Reservoir, 25,000 acre-feet. Willow Park Reservoir, 9,700 acre-feet. Triangle Park Reservoir, 4,000 acre-feet. Bull Creek Reservoir, 14,000 acre-feet. Lake DeSmet Reservoir, 44,000 acre-feet. Smith Reservoir, 30,000 acre-feet. Middle Fork Reservoir, 50,000 acre-feet. Moorhead Reservoir, 390,000 acre-feet. (For flood control, silt control, power, irrigation of 509,560 acres new lands, 204,500 acres supplemental water.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Yellowstone River Basin....	Rejected----------	Adopted.

Missouri River Basin—Continued

Subdivisions	H. Doc. 475 plan	S. Doc. 191 plan
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Missouri River—Fort Peck to Sioux City.	Fort Peck Reservoir (constructed) to be operated as a multiple-purpose reservoir primarily for irrigation when substitute storage is built on the Missouri River. Oahe Reservoir, 6,000,000 acre-feet. Fort Randall Reservoir, 6,000,000 acre-feet. Garrison Reservoir, 17,000,000 acre-feet. Oak Creek Reservoir, 6,000,000 acre-feet. Gavins Point Reservoir, 200,000 acre-feet. (For flood control, navigation, irrigation, power, domestic and sanitary purposes, wild life, and recreation.)	Fort Peck Reservoir (constructed) to be used primarily for irrigation, also for navigation, flood control, silt control, and power. Oahe Reservoir, 19,700,000 acre-feet. Fort Randall Reservoir, 5,100,000 acre-feet. Big Bend Reservoir, 250,000 acre-feet. Medicine Lake Reservoir, 5,200,000 acre-feet. Crosby Reservoir, 230,900 acre-feet. Sheyenne Reservoir, nonactive capacity. Jamestown Reservoir, 800,000 acre-feet. (For flood control, navigation, irrigation, power, silt control, recreation, municipal.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 347, 78th Cong., 2d sess.	
Missouri River—Fort Peck to Sioux City.	Oahe Reservoir—Rejected. Fort Randall Reservoir—Rejected. Garrison Reservoir—Adopted. Oak Creek Reservoir—Rejected. Gavins Point Reservoir—Adopted.	Oahe Reservoir—Adopted. Fort Randall Reservoir—Adopted. Big Bend Reservoir—Adopted. Medicine Lake Reservoir—Adopted. Crosby Reservoir—Adopted. Sheyenne Reservoir—Adopted. Jamestown Reservoir—Adopted.
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Minor western tributaries...	Units not designated, but those desirable and necessary provided for.	Alzada Reservoir, 70,000 acre-feet. Broncho Reservoir, 50,000 acre-feet. Heart Butte Reservoir, 110,000 acre-feet. Dickinson Reservoir, 7,000 acre-feet. Cannonball Reservoir, 40,000 acre-feet. Thunder Hawk Reservoir, 30,000 acre-feet. Shadehill Reservoir, 134,000 acre-feet. Blue Horse Reservoir, 50,000 acre-feet. Bixby Reservoir, 90,000 acre-feet. Green Grass Reservoir, 90,000 acre-feet. Edgemont Reservoir, 45,000 acre-feet. Angostura Reservoir, 160,000 acre-feet. Keyhole Reservoir, 276,000 acre-feet. Northfork Reservoir, 15,000 acre-feet. Rockyford Reservoir, 70,000 acre-feet. (For flood control, silt control, power, irrigation 212,980 acres new lands, 11,300 acres supplemental water supply, and municipal.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Minor western tributaries...	----------	Adopted because of more detailed study and of no conflict in plans.

Missouri River Basin—Continued

Subdivisions	H. Doc. 475 plan	S. Doc. 191 plan
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Niobrara, Platte, and Kansas Rivers.	Kanopolis Reservoir. Tuttle Creek Reservoir. Harlan County Reservoir. Cherry Creek Reservoir. (All of above authorized 1938 and 1941 flood control acts). Medicine Creek Reservoir. Hale Creek Reservoir. Red Willow Reservoir. Enders Reservoir. Beecher Island Reservoir. (Total capacity 5,650,400 acre-feet for flood control, irrigation, and other purposes.) (Irrigable lands not specified, but for determination by later investigation.)	Kanopolis Reservoir, 432,000 acre-feet. Pioneer Reservoir, 34,000 acre-feet. Harlan County Reservoir, 1,199,000 acre-feet. Bonny Reservoir, 118,000 acre-feet. Wray Reservoir, 7,000 acre-feet. Culbertson Reservoir, 170,000 acre-feet. Medicine Creek Reservoir, 32,000 acre-feet. Harvey Reservoir, 36,000 acre feet. Norton Reservoir, 16,000 acre-feet. Kirwin Reservoir, 174,000 acre-feet. Webster Reservoir, 165,000 acre-feet. Glen Elder Reservoir, 304,000 acre-feet. Wilson Reservoir, 262,000 acre-feet. Cedar Bluff Reservoir, 272,500 acre-feet. Narrows Reservoir, 660 000 acre-feet. Glendo Reservoir, 150,000 acre-feet. Plum Creek Reservoir, 384,000 acre-feet. Boelus Reservoir, 790,000 acre-feet. Davis Reservoir, 380,500 acre-feet. Dismal Reservoir, 30,000 acre-feet. Erickson Reservoir, 20,000 acre.feet. Loretta Reservoir, 15,000 acre-feet. (For flood control, silt control, irrigation 1,284,060 acres new lands, 21,804 acres supplemental water.)
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong, 2d sess.:	
Niobrara, Platte, and Kansas Rivers.	Hale Reservoir—Rejected. Beecher Island Reservoir—Rejected. Enders Reservoir—Adopted. Except as noted, approved.	Bonny Reservoir—Adopted. Pioneer Reservoir—Adopted. Harvey Reservoir—Rejected. Except as noted, approved.
	H. Doc. 475 plan and S. Doc. 191 plan compared	
Lower Missouri	The plans are identical, including 6 reservoirs and a series of levees and appurtenant works: Osceola Reservoir Chillicothe Reservoir Arlington Reservoir South Grand Reservoir Pomme DeTerre Reservoir Richland Reservoir (All above reservoirs authorized by the 1938 Flood Control Act.)	
	H. Doc. 475 plan and S. Doc. 191 plan revised and coordinated by S. Doc. 247, 78th Cong., 2d sess.	
Lower Missouri Basin	Adopted because plans identical.	

EXHIBIT B

H. R. 4485: 78TH CONGRESS, 2D SESSION, MISSOURI RIVER BASIN

"The general comprehensive plan for flood control and other purposes in the Missouri River Basin approved by the act of June 28, 1938, as modified by subsequent acts, is hereby expanded to include the plan of improvement for flood control, irrigation, power development, navigation, and other purposes, substantially in accordance with the recommendations of the Chief of Engineers in House Document No. 475, Seventy-eighth Congress, second session; and as expanded is approved; and, in addition to previous authorizations, there is hereby authorized to be appropriated the sum of $200,000,000 for the partial accomplishment of the comprehensive plan as modified and expanded: *Provided*, That nothing in this act shall be construed as creating below Sioux City any demand

upon the water resources of the Missouri River Basin above Sioux City in excess of that now authorized by existing law; *and provided further*, That portions of the storage authorized for the main stem of the river shall be placed on tributaries if the Secretary of War and the Chief of Engineers find such action advisable for silt control and in order to make more water readily available for agricultural and industrial use without impairment of flood control below Sioux City and without increasing the authorized limit of cost."

[S. 1915, 78th Cong., 2d sess.]

A BILL To authorize the undertaking of the initial stage of the comprehensive plan for the conservation, control, and use of the water resources of the Missouri River Basin

Be it enacted by the Senate and House of Respresentatives of the United States of America in Congress Assembled, That the works representing the initial stage of construction for conservation, control, and use of the water resources of the Missouri River Basin, all as described in Senate Document 191, Seventy-eighth Congress, second session, a report prepared pursuant to the Federal reclamation law (act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), are hereby adopted and authorized and shall be prosecuted by the Secretary of the Interior as speedily as may be consistent with budgetary requirements, subject to such modifications as, in the discretion of the Secretary of the Interior, may be advisable for the most practicable effectuation of the plan for development of the Missouri River Basin.

SEC. 2. There are hereby authorized to be appropriated, out of any moneys in the Treasury not otherwise appropriated, such funds as may be necessary to carry out the purpose of this act.

EXHIBIT C

[Excerpt from S. Doc. 191, 78th Cong., 2d sess.]

BOARD OF REVIEW'S REPORT TO THE COMMISSIONER

UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Denver, Colo., April 14, 1944.

From: Board of Review.
To: Commissioner.
Subject: Report on Conservation, Control, and Use of Water Resources of the Missouri River Basin.

1. Pursuant to instructions in your letter of February 2, 1944, the undersigned convened as a special board of review in Denver, Colo., April 10 to 13, 1944, to consider the report of April 1944 on the conservation, control, and use of water resources of the Missouri River Basin, prepared by the Bureau of Reclamation staff of Region 6, assisted by consultants, and representatives of other Government agencies. The results of our review of the report are respectfully submitted herein.

2. The water of the Missouri River system is a primary national resource which, up to the present time, had been inadequately controlled and developed. The two major problems of the basin are the control of devastating floods along the lower river and the stabilization of agriculture in the Dakotas and in eastern Montana.

3. The river and its basin long have been studied by Federal, State, and other agencies, but until recently the studies have not been coordinated or sufficiently broad to comprehend and outline a unified plan for the conservation and beneficial uses of water so as to realize the greatest procurable economic returns and human benefits for the entire region. In our opinion, the report presents a plan which, if carried out, would adequately meet these objectives. It is a comprehensive plan for the highest beneficial use of the waters of the basin. It provides for flood control, navigation, irrigation, power development, domestic and industrial water supplies, silt control, recreational use of waters, conservation of fish and wildlife, and pollution abatement, and will assist in the restoration and maintenance of ground-water levels and inland lakes.

4. The report is the result of long and intensive engineering, scientific, and economic study. The plan is technically and economically sound. It is not proposed or expected that the program as a whole should be undertaken immediately or at one time, but it should progress by starting with the parts that are urgently

needed and continue as rapidly as funds become available and economic conditions demand. The greatest benefits will be attained through coordination of the advice and work of all interested Federal, State, and local agencies.

5. To the extent that the several functions of water control and utilization are conflicting, preference should be given to those which make the greatest contribution to the well-being of the people and to the areas of greatest need. To the extent that the uses of water are competitive, the use of water for domestic, agricultural, and industrial purposes should have preference. The plan would meet these objectives.

6. In determining the justification for this development and the subdivisional features thereof, the report recognizes and the Board confirms the principle that a project or a broad development is justified if the total value of all the benefits to be derived from it exceeds the total cost, whether or not all costs can be recovered from the direct beneficiaries. The report summarizes the benefits of the basin-wide project, and finds that they exceed the estimated costs in the ratio of 2.57 to 1. The Board concurs in this finding.

7. The agency with primary interest in the dominant function of any feature proposed in the plan should construct and operate that feature, giving full recognition, in the design, construction, and operation, to the needs of other agencies with minor interests. All reservoirs where flood control and navigation are dominant should be operated by the Corps of Engineers, and where the flood control and navigation functions are minor, the reservoirs should be operated in accordance with regulations of the Corps so far as flood control and navigation are concerned. All irrigaion features should be operated by the Bureau of Reclamation or its agents. All reservoirs in which irrigation, restoration of surface and ground waters, or power, is dominant, should be operated by the Bureau of Reclamation. Where these functions are minor, the reservoirs should be operated under regulations of the Bureau of Reclamation so far as such functions are concerned. In like manner, agencies with jurisdiction over other functions should be recognized. The Bureau of Reclamation should construct and operate all power-transmission facilities, and should have the responsibility for the disposal of all power generated.

IRRIGATION

8. Land-use adjustments needed to stabilize the agriculture of the basin and mitigate the effects of future droughts can best be promoted by progressive development of the irrigation potentialities of the area. In addition, hundreds of thousands of new residents of the area can be provided opportunities to establish homes and to earn for themselves an adequate level of living. Many projects will be of prime importance in any program for the rehabilitation or settlement of returning servicemen and dislocated war workers. Irrigation-water users should pay for the service rendered them an amount commensurate with the benefits they receive, and their payments should be based on ability to pay out of earnings of the irrigated land. Many of the project areas will be served with water by pumping. The power used in pumping will be provided from the seasonal output of installations proposed in the report. The power should be paid for as an integral part of operation and mainenance charges, and the resulting operation and maintenance charges should be equalized throughout the area by integrating them with repayment charges and the total to the ability of the land served to produce returns for the farmer.

POWER

9. The average unit costs of power and energy for the power developments described in the report will be such as to accomplish the repayment of the construction costs of power development within a reasonable period of years and, in addition, will permit substanial contributions from power revenues to assist in the repayment of other project features as well as providing low-cost power for irrigation-pumping purposes.

10. The market studies indicate the ability of the basin and contiguous areas to absorb in a relatively few years the power to be developed. The large number of comparatively high-cost fuel-burning generating plants now operating in the area offer exceptional possibilities for sale of a large quantity of hydroelectric power as fast as it can be developed. This situation exists because of the immediate opportunity to eliminate high fuel and other generating costs by energy replacement in some cases, and by complete retirement of obsolete plants in others. Growth of lead will soon absorb the balance of the output.

11. The low-cost power to be developed should be given the widest possible distribution for the benefit of the whole region. This could be accomplished best by clothing the Bureau of Reclamation with the responsibility for its distribution and sale. Preference in sales should be given to public bodies and cooperatives.

FLOOD CONTROL

12. The main-stream reservoirs in South Dakota, together with the reservoirs on the tributaries in eastern Kansas and in Missouri and the levee system, will provide the protection needed by the fertile bottom lands and the important cities along the Missouri River below Yankton. The will also aid in the control of Mississippi River floods below St. Louis. The reclamation plan supplements such flood control by the addition of a number of multiple-purpose reservoirs on tributaries of the Smoky Hill River and on the headwaters of the Republican River.

13. On the headwaters of the Missouri River, and its western tributaries in the Dakotas, and on the headwaters of the Platte River, the reclamation plan provides necessary flood control in the areas most seriously menaced, in the main, through the operation of multiple-purpose reservoirs.

NAVIGATION

14. Navigation possibilities are limited to the Missouri River up to Sioux City. While the traffic on this stream has never been impressive even below Kansas City, the Missouri River carries potentialities as an important waterway in the future as Kansas City, Omaha, Sioux City, and their tributary areas continue to grow. The utilization of the stream as a waterway should be planned and such planning should be adapted to the flows to be expected with justified upstream development. The storage facilities contained in the reclamation plan provide the necessary stream regulation to insure a sustained and well-regulated flow through the years, regardless of the vagaries of precipitation.

SILT CONTROL

15. The control of silt is important in many localities. The most urgent silt problems are in the Big Horn River Basin, but the problem is also serious in the Yellowstone River and its other tributaries as well as in the western tributaries of the Missouri River in the Dakotas. The storage control provided throughout the Missouri River system above Yankton will desilt the streams and eliminate most of the silt problems in connection with operations of irrigation and municipal water systems. The retention of the silt by those means will reduce the cost of maintaning the channels in the navigation section of the Missouri River and the Mississippi River below St. Louis.

DOMESTIC, MUNICIPAL, AND INDUSTRIAL WATER SUPPLIES

16. In many parts of the basin, surface waters are relied upon for domestic and municipal water supplies. In the future there will also be greater requirement for industrial water supplies. Regulation of flows of many tributaries as proposed, and the diversion of water from the Missouri River into eastern North Dakota and the Red River Valley, and into the James River Valley in South Dakota, will benefit many cities, towns, and populous areas by increasing low-water flows and restoring ground-water levels.

17. Some communities that depend on wells are faced with the necessity of searching for new water sources because of lowering ground-water levels. The falling water tables have also dried up or reduced to stagnant pools many old lakes in the northern plains. The plan calls for the restoration of some of these lakes, and will also have a beneficial influence on water tables through percolation of water from canals, irrigated farms, and small stream channels.

FISH AND WILDLIFE

18. The Missouri River Basin has areas of outstanding importance in the conservation of fish and wildlife. Notable among them are mountain fishing streams, and the waterfowl refuges and breeding grounds in the northern plains. The development of the water resources of the basin will adversely affect some of the existing facilities, but it will also create exceptional opportunities for

expanding the fish and wildlife programs. No unnecessary injury should be inflicted, and construction plans should include such safeguards as fish screens at canal and other intakes, hold-over conservation pools in reservoirs (for maintenance of proper water elevations and stream flows during spawning and nesting seasons whenever practicable), and other good conservation practices. Facilities destroyed or damaged should be replaced by others of equal utility as a part of the new construction in the conservation programs, wherever possible.

RECREATION

19. The basin includes parts of three great national parks, Yellowstone, Glacier, and Rock Mountain along the Continental Divide, numerous national forests, and many smaller recreational facilities ranging from fishing grounds in the mountains to historical sites on the plains; but there are large areas where recreational facilities are inadequate. The restoration of Devils Lake and the construction of the numerous proposed reservoirs will provide recreational opportunities of major importance within these areas. These opportunities should be capitalized through stocking the lakes and reservoirs with fish, and providing facilities that will be needed to care for the public, such as campgrounds, boat landings, and shelters.

POLLUTION ABATEMENT

20. Along the Red River of the North, and in various other places within the basin, including some areas bordering the Missouri River itself, waters are polluted by discharge of untreated sewage into streams. In periods of low flow, pollution has become serious, threatening the safety of water supplies and creating nusisances. Diversion of water into the Sheyenne River and thence into the Red River of the North will abate some of these conditions. So far as possible, sufficient low-water flows should be maintained throughout the basin to prevent dangerous pollution; but this should not be considered as a substitute for the treatment of sewage where necessary to maintain proper sanitary conditions and the use of stream flows for dilution of sewage should be held to a minimum.

HYDROLOGY

21. Reliable stream-flow records covering sufficient time to reflect variations in flow are in a prerequisite to sound project planning to assure proper control and full utilization of the waters, and to avoid waste of construction funds on the one hand, and the hazards of water shortages, flood damages, and power shortages, on the other. No run-off records are available for many of the smaller streams, and on the larger streams the available records are often inadequate because of insufficient stations, particularly at critical locations. The present inadequate program of stream gaging being conducted by State and Federal agencies should be greatly expanded at once, to the end that the tentative project plans may be confirmed or modified on the basis of more complete stream-flow records, before it becomes necessary to start construction. This situation is particularly applicable to the numerous small projects on the minor tributaries. The appropriations for the United States Geological Survey for stream-gaging work should be substantially increased, and the lack of available State appropriations for matching Federal funds should not be permitted to delay a program at least sufficient to provide the needed records at many key stations.

DESIGNS AND ESTIMATES

22. The project plan includes hundreds of major engineering works, such as dams and power plants, and thousands of important structures. The plans on which the estimates are based were necessarily of a preliminary nature. At many of the dam sites, exploratory work has been carried far enough to obtain dependable basic data. At other sites, further exploratory work must be undertaken before details of the structures can be determined and better estimates made. All the works proposed in the report are of the same general type which the Bureau of Reclamation has been constructing in the West since 1902, and no novel or unprecedented problem are involved. All cost estimates are tentative, and are subject to revisions in the light of further information which must be developed by exploratory work and detailed design studies before construction is undertaken. A lump-sum allowance has been included for contingencies for

unforeseen conditions, but no allowance has been included for major economic changes. All estimates are based on costs as of January 1, 1940, and an appropriated factor will therefore have to be applied to conform such estimates to prices existing at the time the construction of any feature of the development is initiated.

INITIAL CONSTRUCTION PROGRAM

23. The following list of projects is submitted as the initial stage of an orderly program to effectuate a plan of development presented in the report. The list is confined to projects or project features which should in the opinion of the Board, be constructed by the Bureau of Reclamation:

Colorado: Transmountain diversion projects were not considered a part of this basin.

Kansas-Nebraska:
- Bostwick.
- Cedar Bluff.
- Frenchman-Cambridge.
- Kirwin.
- North Republican (Wray) (Colorado-Nebraska).
- Pumping.

Montana:
- Canyon Ferry Reservoir.
- Glasgow Bench pumping.
- Hardin (including Yellowtail Dam).
- Marias.
- Missouri-Souris (Montana division).
- South Bench.
- Yellowstone River pumping units.

North Dakota:
- Heart River.
- Knife River.
- Missouri-Souris (North Dakota division).
- Missouri River pumping units (5).

South Dakota:
- Angostura
- Grand River (Shadebill-Bluehorse).
- Oahe (James River).
- Rapid Valley (including Brennan Reservoir).

Wyoming:
- Big Horn pumping units.
- Big Horn project (Boysen Dam).
- Glendo Reservoir.
- Kortes.
- Owl Creek.
- Painbrock.
- Riverton.
- Shoshone project extensions.

Power-transmission lines.

RECOMMENDATIONS

It is recommended:

(*a*) That the general plan for the development of the basin as contained in the report be approved subject to such modifications and changes as may be indicated, from time to time, as the plan is effectuated.

(*b*) That all works that may be authorized under the approved plan be constructed, operated, and maintained by the Bureau of Reclamation under the direction of the Secretary of the Interior wherever the dominant function of such works is other than navigation and flood control.

(*c*) That the Bureau of Reclamation under the direction of the Secretary of the Interior make all arrangements for the sale and distribution of electric energy generated at all hydroelectric developments hereafter constructed by any Federal agency within the basin as defined in the report, and be authorized to construct, operate, maintain, and improve such electric transmission lines and substations as it finds necessary or desirable in connection therewith.

(*d*) That the initial construction program as hereinabove presented be adopted and that an appropriation of $200,000,000 be authorized for the prosecution of

construction work on the first stage of the program and for the continuation of investigations on the general plan of development.

E. B. DEBLER,
Chairman, Director of Branch of Project Planning.
S. O. HARPER,
Chief Engineer, Director of Branch of Design and Construction.
H. F. MCPHAIL,
Director of Branch of Power Utilization.
W. F. KUBACK,
Director of Branch of Fiscal and Administrative Management.
D. S. STUVER,
Assistant Director of Branch of Operation and Maintenance.

EXHIBIT D

HOUSE DOCUMENT NO. 475, 78TH CONGRESS, 2D SESSION

45. The comprehensive plan proposed herein would provide not only complete protection for this area against all past floods on the Missouri River, but would effect important reductions in flood stages on the lower Mississippi River. In addition to providing flood-control benefits on the Missouri and Mississippi Rivers, the comprehensive plan would also provide for the most efficient utilization of the waters of the Missouri River Basin for all purposes, including irrigation, navigation, power, domestic and sanitary purposes, wildlife, and recreation.

46. Furthermore, the plan would provide many intangible benefits including:

(1) The saving of lives.

(2) The alleviation of human suffering.

(3) A general stabilization of the economic life of the valley and of interstate commerce.

(4) The encouragement of industrial and civic developments.

47. The plan is unquestionably justified.

EXHIBIT E

EXCERPTS FROM INTERIOR DEPARTMENT APPROPRIATION BILL FOR 1950

Hearings Before the Subcommittee of the Committee on Appropriations—House of Representatives, Eighty-first Congress—First Session—on the Interior Department Appropriation Bill for 1950

PART 2

Program from the Missouri River Basin

Mr. KIRWAN. Mr. Warne, will you please explain this request?

Mr. WARNE. Under the program that was adopted by the Congress in the Flood Control Act of 1944, all of the waters of the Missouri River and its tributaries, from the farthest reaches in northwestern Montana down to the juncture with the Mississippi, will be conserved and put to beneficial use through a series of reservoirs, power plants, transmission lines, irrigation facilities, canals, and navigable channels.

In order to assure those multiple purposes, and also to provide as needed flood control, silt retention, pollution abatement, municipal water supplies, recreation, and favorable habitat for fish and wildlife, the Federal, State, and local agencies that are concerned operate in a carefully coordinated system. In accordance with the basic statutory provision provided by the 1944 act, the Corps of Engineers is building the main stem and certain tributary dams below Fort Peck in Montana, and will operate them for flood control and navigation.

The Bureau of Reclamation is building the reservoirs on the upper reaches of the river and most of those on tributary streams, as well as the irrigation projects, and the electric-power transmission lines. The Bureau of Reclamation through a single transmission backbone system will transmit and sell, with preference to cooperatives and public agencies and on a uniform rate schedule, all of

the power generated in the entire project, including energy generated at Army dams as well as those constructed by the Bureau of Reclamation.

The comprehensive plan for the Missouri River Basin was adopted by the Congress, and it sets forth the objectives of the program, the works to be constructed, and the manner of financing and accounting for the expenditures and repayment. The program is formulated with a view to construction by the Bureau of Reclamation and the Corps of Engineers of all of the units described in Senate Document No. 191, as supplemented by the further engineering findings in Senate Document No. 247. Necessarily, the program contemplates that, where appropriate, alternative reservoirs and other facilities may be substituted for units described in the plan, and additional features and developments may also be undertaken in furtherance of the objectives as set forth in Senate Document No. 191. Those physical aspects, although to a large extent accurately forecast in 1944, were subject, of course, to improvement by development of additional engineering and other physical data.

The principles of the Missouri Basin program as set forth in the basic documents do not change with the accumulation of additional engineering information. The works are constructed to bring about the full productive use of all of the natural resources in a manner that will best meet the needs of the region and that will make the maximum contribution to the people living there, as well as to improve navigation and to provide flood protection. Among the brightest promises of the project are that it will minimize the impact of drought disasters in the livestock and dry-farming economy of the Great Plains and will promote sound urban and industrial development, as well as light the farmhouses in the States where rural electrification had lagged farthest behind.

The Bureau of Reclamation plans to build as rapidly as is feasible and as rapidly as funds are made available the major facilities under its jurisdiction for control and conservation of the waters of the Missouri Basin and its tributaries. Irrigation works and generating and transmission facilities are to be geared to the construction of the control and conservation works on which they are dependent. In establishing the priority for the construction of the irrigation and power facilities, a prime factor is the extent and manner in which such facilities will contribute to the overall land use and economy of the northern Great Plains. Other factors include securing suitable geographical distribution, the desire of local people for construction, and, in the case of irrigation works, readiness to assume an appropriate share of the reimbursable construction costs. And, of course, consideration must be given year by year to national conditions that affect Federal budgetary policy, for in the Missouri Basin project we have undertaken a job so vast that it will be constantly a factor in national financial management.

The Congress approved the comprehensive Missouri Basin plan in 1944 on the basis of the showing then made of the national and local benefits. The cost of construction to fulfill the primary control and conservation functions of the program—that is, to the main regulatory reservoirs and associated facilities of the Missouri River and its tributaries—is not a burden on the water and power users. The Congress has, however, required of the Secretary of the Interior that, in connection with the construction of irrigation, municipal water and power facilities, he provide for a return to the Treasury of an appropriate share of their construction costs. That fair share of the costs of construction, which does not include the portions properly assignable to nonreimbursable functions such as flood control and navigation, is determined on a basin-wide basis which seeks to equalize the payments throughout the basin, taking into consideration the benefits received. With respect to any given unit, the amount to be returned to the Treasury by irrigation and power is determined in relation to the direct benefits that are to be obtained from all units theretofore or thereafter constructed. Revenues from and returns for power produced at Missouri River dams constructed by the Corps of Engineers are included in these basin-wide determinations. In other words, the plan is one that is integrated in every respect.

Without the pooling of the cost of individual dams, powerplants, and canals and for divisions on a basin-wide basis among the benefits—flood control, navigation, irrigation, power, municipal water supply, and so forth—for accounting and repayment purposes where the law required repayment, only a part of the Missouri Basin program could have been undertaken. No adequate program for irrigation in the high Plains States that are so frequently drought-stricken

could have been devised with piecemeal plans and programs. Inaction and no progress in 50 years proved that. In contrast, more than 120 dams and associated works are projected for construction under the adopted plan, and more than 26 units are already under way. Those include 20 divisions of the Interior plan and 6 of the Army. Almost 5,000,000 acres will receive irrigation water. A backbone transmission grid will reach from western Montana, where it will interconnect with the lines from power plants in the Columbia River Basin, through the Dakotas to southern terminals in Colorado, Nebraska, Kansas, and Iowa. That backbone grid will integrate the output of the main-stem dams at Garrison, Gavins Point, Fort Randall, with the generators at Canyon Ferry, Boysen, Kortes, and elsewhere throughout the basin, and it will interconnect with the Colorado-Big Thompson, Kendrick, and Fort Peck systems. The power-generation capacity that thus will be linked into a single grid will ultimately be in excess of 2,500,000 kilowatts. This will become a mighty factor in the strengthening of the economy of the basin States. Computation cannot be completed until final costs are known, but Missouri Basin power prices are expected to put this energy in a relatively low-cost bracket.

[Excerpt from hearings before a subcommittee of the Committee on Appropriations, U. S. Senate, 79th Cong., 1st sess., on H. R. 3024]

(P. 939)

Mr. WARNE * * * Senate Document 191, 78th Congress, 2d session, the comprehensive reclamation report, and Senate Document 247, 78th Congress, 2d session, the reconciliation report that brought the reclamation report and the Corps of Engineers' Pick plan together, are of course, the basic documents of authorization, which was accomplished in section 9 of the Flood Control Act.

Section 9 authorized the Department of the Interior to construct the initial stage of the Missouri River plan as set out in the basic documents. This initial stage is estimated to cost $451,000,000. Section 9 authorized the appropriation for the use of the Bureau of Reclamation of $200,000,000 for partial construction of the initial stage and for continuing the studies and preliminary work in connection with the whole plan, which it also approved.

Section 9 also authorized the appropriation of $200,000,000 for similar purposes to the Corps of Engineers, but we are not concerned especially with that here, except to say that we have been establishing the liaison that will be required to achieve full coordination of our work.

Very briefly, the Missouri River plan calls for construction of some 30 units in the initial stage, and sets our total of 90 reservoirs that eventually will be needed to control and utilize the water and related resources of the basin.

The plan is not an irrigation plan, a power plan, or a flood-control, or navigation plan. It is comprehensive and truly multiple-purpose in its scope. It includes irrigation; hydroelectric power; flood control; navigation; domestic, municipal, and industrial water supply; conservation of fish and wildlife; recreational use of the waters; abatement of pollution; and minor purposes.

[Excerpt from hearings before a subcommittee of the Committee on Appropriations, U. S. Senate, 79th Cong. 2d sess., on H. R. 6335]

STATEMENT OF WILLIAM E. WARNE—RESUMED (PP. 883 AND 885)

Senator HAYDEN. Who is going to speak for the Missouri River Basin, for the Reclamation Service? The final item to be considered under Bureau of Reclamation is the Missouri River Basin.

Mr. WARNE. Mr. Chairman, I am prepared to do that.

Increase requested and proposed use of funds.

This request is to increase the $10,312,685 now provided by H. R. 6335 to the original amount recommended by the Budget Bureau of $23,783,600. The funds requested cover 29 subprojects or units scattered over 7 large States comprising the Missouri Valley, and for continuation of investigations under the general plan of development. These 29 units were all authorized by the Flood Control Act of 1944 as an initial step in the Missouri Basin project.

Repayment of costs of the Missouri Basin project are largely predicated on power revenues. These can only be secured if facilities are provided to permit the power to be sold. Otherwise, financial feasibility is adversely affected and benefits to the people in the area are not provided.

[Excerpt from hearings before the subcommittee of the Committee on Appropriations, House of Representatives, 79th Cong., 2d sess., on the Interior Department appropriation bill for 1947, pt. 2]

(P. 470)

Mr. JENSEN. That is exactly why I am taking this time to question you gentlemen, to have a picture of the whole program and what it will do in black or white in these hearings so that they will understand when they read the hearings exactly what they may expect, and when they may expect relief from these terrible floods.

I might also add that I think our colleque here proves that we do not have to have one or two men dictating the policies of that whole great Missouri Valley development, that you gentlemen and the Army engineers, with the full collaboration of the Geological Survey, can handle this thing in a proper manner and in the American way instead of having an empire within an empire with one or two men bossing the show.

Will the Bureau of Reclamation market all of the power from all of the dams, whether the Army engineers build them or whether the Bureau builds them?

Mr. WARNE. That is the plan.

Mr. JENSEN. That is the plan. Just as it is in the southwestern area?

Mr. WARNE. Yes, sir; the Missouri Basin powerplants, whether built by the corps or the Bureau of Reclamation, will be tied in to a single operating plan, and the power will be handled as a single operation by the Bureau of Reclamation.

(P. 444)

Mr. WARNE. * * * Construction will get under way early this spring. Work will get under way at three of our dam sites, and on the transmission line that will bring in power for construction purposes to the Garrison Dam site, which dam will be constructed by the Corps of Engineers.

These funds provide for the extension of the program of engineering and economic or project development work, as well, to the whole of the approved general comprehensive plan of the Missouri Basin project.

The Congress, as I have stated earlier, has approved the comprehensive plan for the development of the Missouri Basin.

The Corps of Engineers is to do the flood-control work and the navigation work, and the Bureau of Reclamation and is to do the irrigation and the related resources development work and the power distribution.

UNITED STATES DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Washington 25, D. C., September 30, 1946.

To: Director, Branch of Project Planning.
From: Assistant Chief Counsel Schwab.
Subject: Use of revenues received from the distribution and disposal of power from dams constructed by the Corps of Engineers.

1. Reference is made to your memorandum of August 30, on the above subject in which you refer to a conversation with Assistant Chief Counsel Will in Mr. Vernon's office on August 28 and in which you ask these questions:

(1) Can any of the receipts from the disposal of electric energy to be generated at Fort Randall dam be applied by the Department of the Interior or the Bureau of Reclamation to the repayment of irrigation costs? If so, what proportion, and by what methods?

(2) Can any of the receipts from the disposal of electric energy to be generated at Fort Randall Dam be credited in any other manner, so far as the United States Government is concerned, to the repayment of irrigation costs? If so, what proportion, and by what methods?

2. Confirming Mr. Will's oral opinion in answer to these questions and confirming also my own oral opinion given to Assistant Commissioner Markwell during the course of hearings on the departmental appropriation bill for fiscal year 1947, the answer to each of your questions is in the negative in the absence of legislation being secured which will permit of such a practice.

3. While your questions are directed to the situation in connection with Fort Randall dam and powerplant, the situation at that dam and power plant is

not unique. The same question arises in the case if power to be generated at all dams constructed by the Corps of Engineers in carrying out the Missouri Basin plan encompassed by House Document 475 and Senate Document 191, 78th Congress, 2d session, as revised and coordinated by Senate Document 247, 78th Congress, 2d session. I shall, therefore, discuss the situation generally under the entire Missouri Basin plan.

4. The Missouri Basin development is, as you know, authorized by section 9 of the act of December 22, 1944 (58 Stat. 887), popularly referred to as the Flood Control Act of 1944. Insofar as here material that authorization reads as follows:

Sec. 9. (a) The general comprehensive plans set forth in House Document 475 and Senate Document 191, 78th Congress, 2d session, as revised and coordinated by Senate Document 247, 78th Congress, 2d session, are hereby approved and the initial stages recommended are hereby authorized and shall be prosecuted by the War Department and the Department of the Interior as speedily as may be consistent with budgetary requirements.

(b) The general comprehensive plan for flood control and other purposes in the Missouri River Basin approved by the act of June 28, 1938, as modified by subsequent acts, is hereby expanded to include the works referred to in paragraph (a) to be undertaken by the War Department; and said expanded plan shall be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers.

(c) Subject to the basinwide findings and recommendations regarding the benefits, the allocations of costs and the repayments by water users, made in said House and Senate documents, the reclamation and power developments to be undertaken by the Secretary of the Interior under said plans shall be governed by the Federal reclamation laws (act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), except that irrigation of Indian trust and tribal lands, and repayment therefor, shall be in accordance with the laws relating to Indian lands.

5. The coordinating document, Senate Document 247, does not authorize application of electric power revenues from powerplants constructed by the Army in effectuation of Missouri Basin development to be applied against repayment of irrigation costs either by the Department of the Interior, or the Bureau of Reclamation, or by the United States Government if those entities can be separated, which for this purpose is an impossibility. While subparagraph (c) of section 9 above quoted might seem to offer some hope of an affirmative answer to your questions, upon careful analysis that hope is seen to be chimerical. You will note that subparagraph (c), while authorizing basinwide findings and recommendations in regard to the allocations of cost and repayments by water users, applies that authorization to "reclamation and power developments to be undertaken by the Secretary of the Interior under said plans," which are to be governed by the Federal reclamation laws. The phrase "power developments" as used in subparagraph (c) refers to the generation of power by the Secretary of the Interior through his agent, the Bureau of Reclamation, and the marketing of that energy by the Secretary of the Interior through his agent. It does not refer to power to be developed under the Army's plan encompassed in House Document 475 because that plan did not provide for generation at and marketing of power by the Secretary of the Interior from dams constructed by the Corps of Engineers. Thus the provisions for basinwide allocations of costs and repayments in relation to power developments refer exclusively to power developments undertaken by the Secretary of the Interior at dams which he is authorized to construct under the reconciled plan.

As indicated above, House Document 475 and the coordinating document, Senate Document 247, do not provide for marketing of energy generated at Army dams by the Secretary of the Interior. We must look elsewhere in the act of December 22, 1944, for that authority. That authority is found in section 5 of the act, which is as follows:

"Sec. 5. Electric power and energy generated at reservoir projects under the control of the War Department and in the opinion of the Secretary of War not required in the operation of such projects shall be delivered to the Secretary of the Interior, who shall transmit and dispose of such power and energy in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principle, the rate schedule to become effective upon confirmation and approval by the Federal Power Commission. Rate schedules shall be drawn having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric

facilities of the projects) of the cost of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years. Preference in the sale of such power and energy shall be given to public bodies and cooperatives. The Secretary of the Interior is authorized from funds to be appropriated by the Congress, to construct or acquire, by purchase or other agreement, only such transmission lines and related facilities as may be necessary in order to make the power and energy generated at said projects available in wholesale quantities for sale on fair and reasonable terms and conditions to facilities owned by the Federal Government, public bodies, cooperatives, and privately owned companies. All moneys received from such sales shall be deposited in the Treasury of the United States as miscellaneous receipts."

You will note that section 5 provides that energy generated at reservoir projects under the control of the War Department shall be delivered to the Secretary of the Interior who shall market the same in accordance with the provisions of section 5. As you know, the Secretary of the Interior by Order No. 2177, dated March 27, 1946, has designated the Bureau of Reclamation as his marketing agent under section 5 for energy produced at Army dams in the Missouri Basin. This action in and of itself amounts to a construction of the act of December 22, 1944, by the Secretary of the Interior to the effect that section 9 (*c*) of that act is not applicable to energy generated at Army dams. Aside from the Secretary's designation of the Bureau as his marketing agent being a construction of the act of December 22, 1944, the language of section 5 itself makes clear that revenues derived from sale of energy generated at Army dams cannot be applied against irrigation construction costs. That section provides that rate schedules for such energy, which to become effective require the confirmation and approval of the Federal Power Commission, shall be drawn "having regard to the recovery (upon the basis of the application of such rate schedules to the capacity of the electric facilities of the projects) of the costs of producing and transmitting such electric energy, including the amortization of the capital investment allocated to power over a reasonable period of years." When this requirement is read in the light of a prior admonition of that section to the effect that the Secretary of the Interior shall market such energy, in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles, it is clear that in the ratemaking process for this energy, possible application of power revenues toward repayment of irrigation costs is not to be considered in determining the rates. Finally, that section requires that all moneys received from sales of such energy by the Secretary of the Interior shall be deposited in the Treasury of the United States as miscellaneous receipts. Revenues derived from energy sales under section 9 (c) of the Flood Control Act of 1944 are governed by the reclamation laws which provide that they shall be deposited in the reclamation fund until the net power revenues are equal to the costs allocated to power to be repaid by power revenues. There are two distinct methods of handling power revenues one of which, applicable to the generation and marketing of energy from dams to be constructed by the Secretary of the Interior, permits application of power revenues against irrigation costs, and the other, applicable to power generated at dams to be constructed by the Army, which does not permit of such application.

It might appropriately be added at this point that the provisions of section 5 are not unique. They are adopted from similar provisions in the Bonneville Project Act of August 20, 1937 (50 Stat. 731) and the Fort Peck Project Act of May 18, 1938 (52 Stat. 403). The situation under the Bonneville Act affords an interesting parallel. Under the Bonneville Project Act the Bonneville Power Administration markets energy generated at Bonneville Dam. Under an Executive order of the President, the Bonneville Power Administration also markets energy from Grand Coulee Dam of the Columbia Basin project of the Bureau. Bonneville's marketing of energy from the Bonneville Dam is governed by the Bonneville Power Act. Bonneville's marketing of Columbia Basin energy is governed by the reclamation laws. This is exactly the same situation which will arise under the Missouri Basin development. The Bureau will, under the reclamation laws, be marketing energy from dams constructed by it in the Missouri Basin. The Bureau will also be marketing energy from dams constructed by the Army in the Missouri Basin by designation of the Secretary of the Interior as his marketing agent, the designation of the Bureau being akin to the designation of Bonneville by the President's Executive order. Power revenues of the Bonneville Power Administration attributable to Coulee Dam

energy are applied against irrigation costs; power revenues of the Bonneville Power Administration attributable to Bonneville Dam are not so applied, and under the law which is in all essential respects similar to section 5 of the act of December 22, 1944, cannot be so applied.

The Bureau's operations under the Fort Peck Project Act also furnish an interesting parallel to this situation. The Bureau is by the Fort Peck Project Act designated as the marketing agent for energy generated at Fort Peck Dam—an Army development. The Bureau is not authorized by law to apply, and does not pursue the practice of applying, Fort Peck power revenues against repayment of any irrigation costs.

In summary then, the answer to question 1 is "No"; the answer to question 2 is "No." These answers can be changed only by the securing of appropriate legislation.

I. A. SCHWAB.

Senator ANDERSON. I just want to make this statement.

It is the intention of the chairmen of the full committees on Public Works and Interior that the record made of these hearings during the past few days will be submitted to the Bureau of Reclamation and the Corps of Engineers for additional explanations, answers, and suggestions.

When we have had a chance to get back these additional explanations and answers and additional comments, there will be a resumption of this hearing. We want to study carefully what we have to do on the costs of operation which farmers are unable to pay.

I am very anxious to have the subject which was initiated by Senator Case examined carefully, because if the Comptroller General has some questions on this, then surely our committees will be justified in paying some attention to it.

The meeting will now stand in recess until the information is available from the committee.

(By direction of the chairman, the following is included in the record:)

Senator O'MAHONEY. Mr. Chairman, in view of comments as to how well informed Congress has been with respect to authorizations of the Missouri River Basin project, since its inception in 1944, I request that the staff prepare comprehensive analyses of presentations to the Congress with respect to this program. The analyses should include references to hearings, authorizations, prohibitions, appropriations, and other language in appropriation acts dealing with the various proposals. Appropriate references should be made to hearings and committee reports to illustrate the extent to which Congress has been kept currently informed as to increasing costs and other pertinent phases of the operations of the program by the Bureau of Reclamation, as well as to the control Congress has exercised over the program.

I request that the analyses, when completed, be printed in the record.

(The information referred to follows:)

ANALYSES OF (1) CONGRESSIONAL LEGISLATIVE AUTHORIZATIONS, AND (2) APPROPRIATION PROCESSES 1944–57 RELATING TO MISSOURI RIVER BASIN PROJECT

In accordance with Senator O'Mahoney's request on May 3, 1957, the following documented analyses of congressional actions relating to the Missouri River Basin project are presented from official records. The first section includes a list of congressional acts comprising authorizations for the development of the Missouri River Basin project. The second section is a synopsis of the record made during the appropriation processes of fiscal year 1946 through 1957, which reflects congressional interest in and the control exercised by the Congress over the reclamation program.

The latter section includes references to justifications showing changes in total estimated costs and in the program, as well as actions by the congressional committees over a 12-year period.

Included in the analysis are specific disallowance of funds for certain units, including irrigation developments and power transmission. Other comments on certain items in committee or conference reports are cited.

The analyses are as follows:

BUREAU OF RECLAMATION

MISSOURI RIVER BASIN AUTHORIZATIONS

Flood Control Act of 1944 (58 Stat. 887)

H. R. 4485, Public Law 534, 78th Congress, House hearings (Flood Control Committee) 1248 pages; Senate hearings (Commerce Committee) 816 pages; House Report 1309; Senate Report 1030; Conference Report H. 205. General comprehensive plan set forth in House Document 475 and Senate Document 191, 78th Congress, 2d session, as revised by Senate Document 247, 78th Congress, 2d session.

Authorized appropriations of $200,000,000 for Corps of Engineers and $200,000,000 for Secretary of Interior for prosecution of intial phase of program, referred to in Senate Document 191 through "partial accomplishment" of same.

Flood Control Act, 1946 (60 Stat. 641)

H. R. 6597, Public Law 526, 79th Congress, House Report 2165; Senate Report 1624; Conference Report H. 2474. House hearings (Flood Control Committee) 700 pages; Senate hearings (Commerce Committee) 249 pages.

Authorizes additional $150,000,000 for Corps of Engineers and additional $150,000,000 for Secretary of the Interior for prosecution of comprehensive plan referred to in Senate Document 191 adopted by section 9 (a) of Flood Control Act of 1944.

Flood Control Act of 1950 (64 Stat. 170)

H. R. 5472, Public Law 516, 81st Congress, House Report 969; Senate Report 1143, Conference Report H. 1968.

House hearings (Public Works Committee) 1,132 pages.

Senate hearings (Public Works Committee) 1,122 pages.

Authorizes additional $200,000,000 for Secretary of the Interior.

Act of July 16, 1954, (68 Stat. 486)

S. J. Res. 165, Public Law 503, 83d Congress, 2d session.

No reference to printed House or Senate hearings.

Authorizes construction by Secretary of the Interior of Glendo unit, Wyoming.

Act of August 21, 1954 (68 Stat. 757)

H. R. 8520, Public Law 612, 83d Congress, 2d session.

House hearings (Interior and Insular committee) 140 pages.

Senate hearings (no printed hearings).

Authorizes inclusion of Ainsworth, Lavaca Flats, Mirage Flats extension, and O'Neill irrigation developments.

Act of May 2, 1956 (58 Stat. 891)

S. 1194, Public Law 505, 84th Congress, 2d session.

House hearings (no reference to printed hearings).

Senate hearings (Interior and Insular Committee) 9 pages.

Authorizes transfer of administrative jurisdiction over Red Willow Dam and Reservoir, Nebr., to the Secretary of the Interior and over Wilson Dam and Reservoir, Kans., to the Secretary of the Army.

Act of May 18, 1956 (70 Stat. 160)

H. R. 9132 Public Law 531, 84th Congress, 2d session.

House hearings on H. R. 5749 (Interior and Insular Affairs Committee) 91 pages.

Senate hearings on S. 2206 (Interior and Insular Affairs Committee) 74 pages.

Approves report of Secretary of the Interior on Ainsworth unit.

Act of August 3, 1956 (70 Stat. 975)

S. 3594, Public Law 952, 84th Congress, 2d session.
No reference to printed House or Senate hearings on H. R. 7435 or S. 3594.
Reauthorizes construction of Farwell unit, Nebraska, by Secretary of the Interior.

MISSOURI RIVER BASIN

1957

Justifications: Summary justification contains explanation of change in total project cost as well as individual unit justifications.
Hearings:
House: Justifications inserted in hearings and discussed.
Senate: Justifications inserted in hearings and discussed.
Reports:
Helena Valley:
House disallowed new funds in view of no repayment contract with notation that carryover balance was available for construction if that deficiency was overcome.
Senate recommends allowance and states construction should proceed immediately and urges Bureau to continue repayment contract negotiations.
Conferees agreed no construction should proceed until a repayment contract executed.
Lower Marias:
House provided new funds limited to completion of Tiber Dam. No funds available to project to be used for further planning on irrigation features in view of no repayment contract.
Senate agreed.
St. Francis:
House deleted new funds since no irrigation district formed and no repayment contract executed.
Senate agreed.
Transmission division:
House funds for Fort Randall-Grand Island 230-kilovolt transmission line disallowed by House.
Senate agreed.
Yellowtail:
House disallowed new funds. Carryover balance available in event favorable response to condemnation action or pending legislation would permit entry to dam site.
Senate recommended fund allowance with hope that acquisition of site would be resolved at early date.
Conferees—No comment in report. Funds disallowed.
Investigations:
House eliminated program for Oahe unit. Unobligated balances may be used to complete reports.
Senate allowed Oahe unit program.
Conferees stated Oahe unit investigations to be completed within total amount allowed for Missouri River Basin investigation program.
Act (restricted provisions):
"* * * That no part of this appropriation shall be used to initiate construction of transmission facilities within those areas covered by power wheeling service contracts which include provision for service to Federal establishments and preferred customers, except those transmission facilities for which construction funds have been heretofore appropriated, those facilities which are necessary to carry out the terms of such contracts or those facilities for which the Secretary of the Interior finds the wheeling agency is unable or unwilling to provide for the integration of Federal projects or for service to a Federal establishment or preferred customer:"
"* * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress."

1956

Justifications: Summary justification shows original and present estimated costs. Unit justifications give explanations of changes in total estimated costs under "Status" paragraph.

Hearings:

House: Pages 241–246; also discussions under units.

Senate:

Pages 51–52 contain breakdown of estimated costs by units. Also page 184.

Changes in estimated costs explained in status paragraph of unit justifications.

Reports:

Helena Valley:

House denied additional funds in view of no repayment contract.

Senate—No specific comment.

Heart Butte, Hanover Bluff:

House stated construction work is to be discontinued and unobligated balances may be applied only to cleaning up.

Senate—Committee recommended a decrease in allotment on Heart Butte on advice from Bureau that reduced allotment was sufficient. No specific comment on Hanover Bluff.

Transmission division:

House deleted program for 115 kilovolt transmission line from Fort Randall Dam to Neligh, Nebr. Consideration should be given to a heavier line.

Senate included funds for Fort Randall to Neligh 115-kilovolt line. Recommended an additional $60,000 to study feasibility of a 230 kilovolt to Grand Island and if feasible study should be submitted to committee and await its instructions.

Hardin unit: Senate report shows total cost of unit.

Owl Creek: Senate report shows total cost of unit.

Act (restricted provisions):

"* * * That no part of this appropriation shall be used to initiate construction of transmission facilities within those areas covered by power wheeling service contracts which include provision for service to Federal establishments and preferred customers, except those transmission facilities for which construction funds have been heretofore appropriated, those facilities which are necessary to carry out the terms of such contracts or those facilities for which the Secretary of the Interior finds the wheeling agency is unable or unwilling to provide for the integration of Federal projects or for service to a Federal establishment or preferred customer:"

"* * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress."

1955

Congressional justification: Change in total estimated cost reported for basin and by each unit or division.

Hearings:

House: Reduced program for 7 units or activities by $5,815,000 and increased 1 unit (Bostwick) by $640,000.

Senate: Restored most of cuts and increased Bostwick by $500,000 more. Also transferred for Missouri River Basin investigations and funds for other participating agencies back to the construction and rehabilitation appropriation. House had approved department and Budget Bureau recommendation that Missouri River Basin investigation be included with general investigations and that participating agencies request funds under their own appropriation structure.

Conferees: Adopted most of provisions of Senate bill but reduced transmission division and Missouri River Basin investigations.

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Act (restricted provisions):
"* * * That no part of this appropriation shall be used to initiate construction of transmission facilities within those areas covered by power wheeling service contracts which include provision for service to Federal establishments and preferred customers, except those transmission facilities for which construction funds have been heretofore appropriated, those facilities which are necessary to carry out the terms of such contracts or those facilities for which the Secretary of the Interior finds the wheeling agency is unable or unwilling to provide for the integration of Federal projects or for service to a Federal establishment or preferred customer:"
"* * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress."

1954

Justifications: Summary justification shows total estimated obligations by units. Unit justifications explain change in total estimated costs.
Hearings: House: Justifications in hearings.
Reports:
Missouri diversion unit:
House allowed funds but stipulated funds for continuing construction are not to be used until Bureau has submitted to Secretary for his consideration a plan for one or more pumping plants, canals, and distribution systems to serve not to exceed 100,000 acres of land. None of funds provided to be expended for diversion dam or Little Porcupine powerplant.
Senate recommended before actual construction starts, Secretary have a board of engineers advise him on engineering feasibility of House recommendation as compared with diversion dam.
Transmission division:
House eliminated all funds for new transmission line starts.
Construction of Sinclair-Westvaco line stopped and rescinded $600,000 of 1953 funds not needed.
Deleted funds for general property stores and equipment with request inventory be made of all agencies of Department with view of transferring from location not needed.
Eliminate funds for project investigations.
Senate allowed various lines disallowed by House. List on page 16 of report No. 445.
Stated efforts to secure wheeling contracts wherever possible and Federal Government build transmission lines only when such agreements cannot be negotiated at comparable cost.
Conferees report—Adjusted amounts on transmission lines. Disallowed Watertown-Granite Falls-Benson-Fergus Falls transmission line.
Act (restricted provisions):
"* * * That no part of this appropriation shall be used to initiate construction of transmission facilities within those areas covered by power wheeling service contracts which include provision for service to Federal establishments and preferred customers, except those transmission facilities for which construction funds have been heretofore appropriated, those facilities which are necessary to carry out the terms of such contracts or those facilities for which the Secretary of the Interior finds the wheeling agency is unable or unwilling to provide for the integration of Federal projects or for service to a Federal establishment or preferred customer:
"* * * That in order to promote agreement among the States of Nebraska, Wyoming, and Colorado, and to avoid any possible alteration of existing vested water rights, no part of this or of any prior appropriation shall be used for construction or for further commitment for construction of Glendo unit or any feature thereof, until a definite plan report thereon has been completed, reviewed by the States of Nebraska, Wyoming, and Colorado, and approved by Congress.
"* * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report

thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress."

1953

Justifications: Change in total estimated cost reported by unit or division.
Hearings:
House: Made specific reductions in allotments for units but allowed slightly more than the overall program by applying an extra $21,000,000 carryover funds.
Senate: Disagreed with House on amount of carryover and restored cuts made by House.
Conferees: Approved House program and modified in Senate report except disallowed Jamestown-Fargo-Fergus Falls-Benson-Granite Falls-Mankato-Blue Earth-Jackson-Fort Randall 230-kilovolt lines and substations.
Act (restricted provisions):
"* * * That no part of this appropriation shall be used to initiate construction of transmission facilities within those areas covered by power wheeling service contracts which include provision for service to Federal establishments and preferred customers, except those transmission facilities for which construction funds have been heretofore appropriated, those facilities which are necessary to carry out the terms of such contracts or those facilities for which the Secretary of the Interior finds the wheeling agency is unable or unwilling to provide for the integration of Federal projects or for service to a Federal establishment or preferred customer:
"* * * That in order to promote agreement among the States of Nebraska, Wyoming, and Colorado, and to avoid any possible alteration of existing vested water rights, no part of this or of any prior appropriation shall be used for construction or for further commitment for construction of Glendo unit or any feature thereof, until a definite plan report thereon has been completed, reviewed by the States of Nebraska, Wyoming, and Colorado, and approved by Congress.
"* * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress."

1952

Justifications: Summary justification shows total estimated cost by units as well as individual unit justifications. Unit justifications contain statement on change in total estimated cost.
Hearings:
House: Page 431 table shows original estimated cost and 1952 estimated cost. Justifications inserted in hearings.
Senate:
Page 1567 states estimated cost.
Pages 2098–2100 cite estimated costs on several units and explanation of change.
Reports (transmission division):
House—List of transmission lines and substations specifically denied.
Senate—Concurs in denials shown in House report.
Conferees—Report shows lines denied.
Act (restricted provisions):
" * * * That no part of this appropriation shall be used to initiate construction of transmission facilities within those areas covered by power wheeling service contracts which include provision for service to Federal establishments and preferred customers, except those transmission facilities for which construction funds have been heretofore appropriated, those facilities which are necessary to carry out the terms of such contracts or those facilities for which the Secretary of the Interior finds the wheeling agency is unable or unwilling to provide for the integration of Federal projects or for service to a Federal establishment or preferred customer:
" * * * That in order to promote agreement among the States of Nebraska, Wyoming, and Colorado, and to avoid any possible alteration of existing vested water rights, no part of this or of any prior appropriation shall be

used for construction or for further commitment for construction of Glendo unit or any feature thereof, until a definite plan report thereon has been completed, reviewed by the States of Nebraska, Wyoming, and Colorado, and approved by Congress.

" * * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress."

1951

Justifications: Tables showing total estimated cost for each unit included. Unit justifications contain explanations of changes in total estimated cost.

Hearings:

House: Justifications in House plus table showing total estimated cost table on page 860. Also discussions at various points in testimony.

Senate: General total estimated cost discussion on page 686. Also at various points in testimony.

Reports (transmission division):

House eliminated funds on specific lines.

Senate concurred in House action and deleted an additional transmission line and substation.

Act (restricted provisions):

" * * * That in order to promote agreement among the States of Nebraska, Wyoming, and Colorado, and to avoid any possible alteration of existing vested water rights, no part of this or of any prior appropriation shall be used for construction or for further commitment for construction of Glendo unit or any feature thereof, until a definite plan report thereon has been completed, reviewed by the States of Nebraska, Wyoming, and Colorado, and approved by Congress.

" * * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress."

1950

Justifications: Tables showing total estimated cost for each phase A unit included as well as schedule of construction program with each phase A unit.

Hearings:

House: Tables included in hearings plus explanation of changes in total estimated cost in general statements for the respective units. Also total estimated cost shown on schedule of construction program for each phase A unit. Also discussions at various points in testimony.

Senate: Total estimated cost for Missouri River Basin given in table on page 2609.

Reports:

House: Eliminated funds for surveys and construction of Glendo unit; restricts use of funds to capacity and features specified in original authorization for project.

Senate:

Recommended funds for the Glendo unit with understanding that activities to be confined to investigations. Also recommended deletion of the Glendo proviso from the bill and insertion of language in lieu thereof.

Recommended Moorhead unit proviso.

Recommended language with regard to restrictive elevation Canyon Ferry Reservoir.

Act (restricted provisions):

"* * * That in order to promote agreement among the States of Nebraska, Wyoming, and Colorado, and to avoid any possible alteration of existing vested water rights, no part of this or of any prior appropriation shall be used for construction or for further commitment for construction of Glendo unit or any feature thereof, until a definite plan report thereon has been completed, reviewed by the States of Nebraska, Wyoming, and Colorado, and approved by Congress.

"* * * That no part of this or prior appropriations shall be used for construction, nor for further commitments to construction of Moorhead Dam and Reservoir, Mont., or any feature thereof until a definite plan report thereon has been completed, reviewed, by the States of Wyoming and Montana, and approved by Congress.

"That no part of this appropriation shall be available or used to maintain or operate Canyon Ferry Reservoir at a higher maximum pool elevation than 3,766 feet, unless and until new land in Broadwater County, Mont., equal in acreage to the irrigated land to be inundated in Canyon Ferry Reservoir above elevation of 3,766 feet is provided with facilities for irrigation."

1949

Justifications: Tables showing total estimated cost for each phase A unit included as well as schedule of construction program for each phase A unit.

Hearings:

House: Tables included in hearings. Discussion of total estimated cost at various points in hearings. Statements made at beginning of each unit regarding total estimated cost.

Senate: Table on page 829 shows units on which changes in capacity have been proposed. Also specific discussion on capacity of Glendo took place.

Act (restricted provisions): "* * * That no part of this appropriation shall be available or used to maintain or operate Canyon Ferry Reservoir at a higher maximum pool elevation than 3,766 feet, unless and until new land in Broadwater County, Mont., equal in acreage to the irrigated land to be inundated in Canyon Ferry Reservoir above elevation of 3,766 feet is provided with facilities for irrigation."

1948

Justification: Table showing total estimated cost of each unit scheduled for construction prior to fiscal year 1949.

Hearings: House: Justification statement and table put in hearings page 1107 showing total estimated cost of each unit which is scheduled to start prior to fiscal year 1949.

1947

Justification: Tabulation, showing among other things, the total estimated cost of all authorized units in the initial stage of the development plan.

Hearings: House: On page 444, part 2, the amount of the total estimated cost, based on 1946 prices, for all authorized units in the initial phase was given to the committee. Also on page 451 and succeeding pages tabulations appear showing estimated cost by units.

1946

Regular appropriation

Hearings:

House: Justification for supplemental appropriations for initiation of construction submitted before hearings were closed on regular bill. Consequently hearings were held thereon as part of 1946 appropriation request. Justification of Missouri River Basin inserted in hearings including a tabulation showing the estimated cost of the authorized units, totaling some 30 units in the initial phase of development.

Senate: Bureau witness referred to total estimated cost of units in the initial stage, page 939.

First deficiency appropriation

Hearings: House:

On pages 477 and 488 reference is made to total estimated cost of Missouri River Basin project, including work of Corps of Engineers, based on 1940 prices.

The construction schedule for fiscal year 1956 appears on page 501, which includes total estimated cost of the 30 units included in the Bureau's part of the initial development.

(Whereupon, at 5:10 p. m., the hearing was recessed, subject to the call of the Chair.)

OPINIONS OF THE SOLICITOR, DEPARTMENT OF THE INTERIOR, RELATIVE TO POWER REVENUE REQUIREMENTS, ALLOCATIONS OF COST, AND POWER RATE SCHEDULES

M. 33473.

POWER RATE SCHEDULES FOR COLUMBIA BASIN (GRAND COULEE) PROJECT

Opinion, September 29, 1944

COLUMBIA BASIN (GRAND COULEE) PROJECT—AUTHORIZATION—POWER DEVELOPMENT—ALLOCATIONS OF COST—RATE SCHEDULES

Allocations of cost of the Columbia Basin (Grand Coulee) project and the establishment of the rate schedule for the sale of power therefrom are governed by the provisions of section 9 of the Reclamation Project Act of 1939 (53 Stat. 1193, notwithstanding the broad power vested in the President "to make and enter into any and all necessary contracts" in connection with the project, by section 2 of the act of August 30, 1935 (49 Stat. 1039), since section 1 of the Columbia Basin Project Act, approved March 10, 1943 (Public Law 8, 78th Cong.), "authorized and reauthorized" the project as one "subject to the Reclamation Project Act of 1939."

COLUMBIA BASIN (GRAND COULEE) PROJECT—RATE SCHEDULES—MINIMUM REQUIREMENTS

The minimum legal requirements for the fixing of rate schedules for the sale of power may be met by the establishment of rate schedules which will return (1) the share of operation and maintenance expenses chargeable to power development, (2) interest at not less than 3 percent on the power construction costs, and (3) as "other fixed charges," an amount equal to any excess over total net power revenues which would otherwise exist in the construction costs allocated to power to be returned from power revenues.

COLUMBIA BASIN (GRAND COULEE) PROJECT—INTEREST REQUIREMENTS

Interest during construction need not be included as a part of the project cost and the interest component in the rate schedule need not be calculated from the time of actual expenditure in construction.

Harper, *Solicitor.*

UNITED STATES DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SOLICITOR,
Washington 25, D. C., September 29, 1944.

M. 33473.

The honorable the Secretary of the Interior.

MY DEAR MR. SECRETARY: At the request of the Commissioner of the Bureau of Reclamation, in which the Acting Director of the Division of Power has concurred, you have referred to me for opinion certain questions concerning the legal requirements of the rate structure to be established for the sale of electric energy generated at the Columbia Basin (Grand Coulee) project and marketed by the Bonneville Power Administration pursuant to Executive Order No. 8526, dated August 26, 1940.[1] The following are the questions:

"I (a) For the purposes of the cost allocations report on the Columbia Basin project, must the estimates of revenues to be allocated to the Columbia Basin (Grand Coulee) project for electric power generated at the project powerplants and delivered to the Bonneville Power Administration to be marketed by Bonne-

[1] 5 F. R. 3390.

ville be sufficient to return to the United States interest at 3 percent per annum on some portion of the reimbursable costs of the project, in addition to returning that portion of the reimbursable costs properly chargeable to power and the other portions of the reimbursable costs that are to be met by power revenues, including that part of the irrigation cost not to be repaid by the project water users?

"I (b) If the answer to question I (a) is 'No,' would estimates of revenues so to be allocated be legally adequate that were premised on the return of the reimbursable costs, as stated in question I (a) but with the interest component of revenues being used to assist in the retirement of that portion of the reimbursable costs which are not properly allocated to power but which are to be returned from power revenues?

"II. Does the law require, for the purposes of ratemaking as distinguished from application of revenues, that interest be calculated on the investment from the time of making the investment by actual expenditure in construction, or may it be calculated from a later date?"

It is my opinion that question I (a) must be answered in the negative and that the answer to question I (b) accordingly must be in the affirmative. As for question II, it is my opinon that the Secretary is not required to calculate interest on the investment from the time of actual expenditure in construction and that it therefore may be calculated from such subsequent point of time as may be most appropriate.

The Columbia Basin project, under the name "Grand Coulee Dam," was initiated as a Public Works Administration project and subsequently was ratified and adopted by section 2 of the Rivers and Harbors Act of August 30, 1935 (49 Stat. 1039, 33 U. S. C. sec. 540, note), which provided in part:

"That for the purpose of controlling floods, improving navigation, regulating the flow of the streams of the United States, providing for storage and for the delivery of the stored waters thereof, for the reclamation of public lands * * * and other beneficial uses, *and for the generation of electric energy as a means of financially aiding and assisting such undertakings*, the projects known as 'Parker Dam' on the Colorado River and 'Grand Coulee Dam' on the Columbia River, are hereby authorized and adopted, and all contracts and agreements which have been executed in connection therewith are hereby validated and ratified, and the President, acting through such agents as he may designate, is hereby authorized to construct, operate, and maintain dams, structures, canals, and incidental works necessary to such projects, and in connection therewith *to make and enter into any and all necessary contracts* including contracts amendatory of or supplemental to those hereby validated and ratified * * *" [Italic supplied.]

The Reclamation Project Act of 1939 (act of August 4, 1939, 53 Stat. 1187), certain provisions of which will be significant in the consideration of the questions herein presented for opinion, is the next enactment to be noted.[2]

Subsection 9 (a) of that act provides for the allocation of the estimated cost of any new project, new division, or supplemental works, to enumerated uses, including irrigation and power.[3] The second sentence of subsection 9 (c) provides:

"* * * Any sale of electric power or lease of power privileges, made by the Secretary in connection with the operation of any project or division of a project, shall be for such periods, not to exceed forty years, and at such rates as in his judgment will produce power revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost, interest on an appro-

[2] The purpose of the act is set forth in sec. 1 (43 U. S. C., sec. 485): "That for the purpose of providing for United States reclamation projects a feasible and comprehensive plan for an economical and equitable treatment of repayment problems and for variable payments of construction charges which can be met regularly and fully from year to year during periods of decline in agricultural income and unsatisfactory conditions of agriculture as well as during periods of prosperity and good prices for agricultural products, and which will protect adequately the financial interest of the United States in said projects, obligations to pay construction charges may be revised or undertaken pursuant to the provisions of this act."

[3] The following is the material portion of the text of this subsection: "No expenditures for the construction of any new project, new division of a project, or new supplemental works on a project shall be made, or shall estimates be submitted therefor, by the Secretary until after he has made an investigation thereof and has submitted to the President and to the Congress his report and findings on (1) the engineering feasibility of the proposed construction; (2) the estimated cost of the proposed construction; (3) the part of the estimated cost which can properly be allocated to irrigation and probably be repaid by the water users; (4) the part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues; (5) the part of the estimated cost which can properly be allocated to municipal water supply or other miscellaneous purposes and probably be returned to the United States."

priate share of the construction investment at not less than 3 per centum per annum, and such other fixed charges as the Secretary deems proper: * * *" The question of the extent of the applicability of the 1939 act to the project first is presented by section 1 of the Columbia Basin Project Act, approved March 10, 1943 (Public Law 8, 78th Cong.), which provides:

"In addition to the primary purposes for which the Grand Coulee Dam project (hereafter to be known as the Columbia Basin project and herein called the 'project') was authorized under the provisions of the act of August 30, 1935 (49 Stat. 1028), the project is hereby authorized and reauthorized as a project *subject to the Reclamation Project Act of 1939; and the provisions of each of those two acts* together with the provisions of this act *shall govern the repayment of expenditures* and the construction, operation, and maintenance of the works constructed as a part of the project." [Italic supplied.]

In the meantime an amendment to the 1939 Interior Department Appropriation Act[4] had contained an important provision governing the application of power revenues in connection with irrigation projects. This provision, known as the Hayden-O'Mahoney amendment, provides that:

"All moneys received by the United States in connection with any irrigation projects, including the incidental power features thereof, constructed by the Secretary of the Interior through the Bureau of Reclamation, and financed in whole or in part with moneys heretofore or hereafter appropriated or allocated therefor by the Federal Government, shall be covered into the reclamation fund, except in cases where provision has been made by law or contract for the use of such revenues for the benefit of users of water from such project: *Provided*, That after the net revenues derived from the sale of power developed in connection with any of said projects shall have repaid those construction costs of such project allocated to power to be repaid by power revenues therefrom and shall no longer be required to meet the contractual obligations of the United States, then said net revenues derived from the sale of power developed in connection with such project shall, after the close of each fiscal year, be transferred to and covered into the General Treasury as 'miscellaneous receipts': *Provided further*, That nothing in this section shall be construed to amend the Boulder Canyon Project Act (45 Stat. 1057), as amended, or to apply to irrigation projects of the Office of Indian Affairs."

It is my opinion that the Columbia Basin project is subject to the provisions of the Reclamation Project Act of 1939, section 9 of which is controlling with respect to the sale of power from the project and the elements to be included within the rate schedule. The Hayden-O'Mahoney amendment of the Interior Department Appropriation Act of 1939 which deals expressly with the application of power revenues, is entirely consistent with the act of 1939 and aids in its construction.

Before proceeding to the consideration of question I, it is desirable to examine the divergent views which have been advanced with respect to it and to note certain assumptions which have been made in its submission. The following is quoted from a memorandum by which the question was submitted:

"* * * One view of the law is that the allocations report must be predicated on estimates of revenues sufficient to return to the United States that portion of the reimbursable costs properly chargeable to power and the other portions of the reimbursable costs that are to be met by power revenues and, in addition, interest at 3 percent per annum on what is described in section 9 (c) of the Reclamation Project Act of 1939 as 'an appropriate share of the construction investment.' It is part and parcel of this view that this term 'appropriate share' comprises that part of the estimated project costs that are properly chargeable to power.

"The other principal view is that, even though power rates are to be fixed on a basis that includes as a part of the rate base interest on that portion of the costs properly chargeable to power, it is only necessary, in so far as showing full reimbursability of the project is concerned, to show a return within an agreed period of amortization of the full amount of the project costs which are allocated to be returned from power revenues. Under this view the interest component of power revenues would be applied to assist in the retirement of the reimbursable costs that were not properly chargeable to power but which are to be retired by the application of power revenues.

[4] Act of May 9, 1938 (52 Stat. 291, 322, 43 U. S. C. sec. 392 (a)).

"For the purpose of the Solicitor's consideration of the legal problems, these assumptions should be made: (1) That all project costs, except those allocated to flood control and navigation, are required to be returned to the United States within an agreed amortization period; and (2) that power revenues will be expected to return to the United States that part of the costs properly chargeable to power, plus that portion of the cost properly chargeable to irrigation but which are beyond the ability of the water users to repay within the statutory repayment period."

It is understood that both views, quoted *supra*, of the application of section 9 assume that the cost allocations report will reflect: (1) The part of the estimated cost which can be properly allocated to irrigation and be repaid by the water users; (2) the part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues, and (3) that part of the estimated cost properly chargeable to irrigation but which, because of the inability of the water users to repay, also is to be repaid from net power revenues (the irrigation subsidy). The first view is that the minimum rate schedule prescribed by the second sentence of subsection 9 (c) must be such as will produce revenues sufficient to meet (2) and (3), plus at least 3 percent of (2).[5] The second view concedes the necessity of always collecting (2) with at least 3 percent thereon. It is contended, however, that the minimum rate schedule need otherwise only be such as will return revenues, including interest, which will be sufficient to meet (2) and (3).[6] Under the first view the proceeds of the interest charge would be realized above the amounts necessary to meet reimbursable cost, while under the second view they would be applied to that purpose[7] to the extent of the irrigation subsidy. Reduced to its simplest terms, therefore, the issue is as follows: The Bureau of Reclamation contends that the Congress, by this provision of subsection 9 (c) intended that the United States not only realize, but retain, a "profit" of 3 percent from its power investment. The Division of Power contends that Congress did not so intend, and that the sum collected by virtue of the 3 percent interest on investment required to be included in any power rate schedules prepared under subsection 9 (c) may be applied to the amortization of those costs (chargeable to irrigation but beyond the ability of the water users to repay (irrigation subsidy).

It is my opinion that neither the contention of the Bureau of Reclamation nor that of the Division of Power is entirely correct. I believe that a proper interpretation of section 9 of the Reclamation Act of 1939 and the Hayden-O'Mahoney amendment to the Department's Appropriation Act of 1939 require that the minimum rate schedule be such as to produce revenues sufficient only to meet in addition to the return for operation and maintenance cost, an amount equal to 3 percent of the power construction costs with the proviso that if total revenues thus produced are insufficient to repay all costs allocated to power to be repaid by power revenues, "other fixed charges" must be included in the rate schedule to produce revenues sufficient to repay such costs. The Bonneville Power Admininstration has indicated that it shares this view, and its views otherwise are in accord with those of the Division of Power.

If we look only to the language of section 9 of the Reclamation Project Act of 1939, the intention of the Congress seems clear. Subsection 9 (a) and 9 (c), although related, serve two different purposes. Subsection 9 (a) embodies the test for feasibility. All projects to be undertaken as authorized under the act must meet this test. Subsection 9 (c) contains the criteria for rates to be

[5] Both views assume that "an appropriate share of the construction investment," on which the interest is to be computed within the meaning of subsection 9(c), is the amount properly chargeable to power for power construction costs, an assumption which is supported by the legislative history. Both the Senate report (No. 758, 76th Cong., 1st sess.) and the conference report (84th Cong. Rec. 10219), in explanation of an amendment of the bill reducing the interest rate, clearly indicate an understanding that interest should be computed "on the share of the construction cost attributed to power construction."

[6] Both views, of course, assume that the power revenues must be sufficient to return operation and maintenance cost also, factors which for simplicity are not injected at this point of the discussion.

[7] As an example of the practical application of the second view it may be assumed that the interest component, whether the 3-percent minimum or a permissible higher one, would return revenues sufficient to cover (2), thus permitting a complete reimbursement from power revenues of those parts of the cost so allocated. Or, if a 3-percent interest component should in fact be insufficient for that purpose, the difference could be realized by including in addition so much of the subsidy to irrigation as might be necessary under "other fixed charges." This view, therefore, involves not only a negative answer to question I (*a*) but, necessarily, an affirmative one to question I (*b*).

charged by the Secretary for the sale of power. All rates prescribed by him must conform to these criteria.

It is to be observed that the criteria prescribed in subsection 9 (c) include a discretionary factor. The rates must produce power revenues "at least sufficient to cover an appropriate share of the annual operation and maintenance cost, interest on an appropriate share of the construction investment at not less than 3 percent per annum, and such other fixed charges as the Secretary deems proper." The Secretary's discretion, however, is limited by the relationship between subsection 9 (a) and subsection 9 (c). Subsection 9 (a) was intended to insure the reimbursability of projects. "Other fixed charges," as used in subsection 9 (c), must, therefore, be such as to produce total revenues from power which will equal any costs not written off as allocable to navigation and flood control or not reimbursable from other sources. If these costs are less than the revenues which would be collected by reason of the minimum 3 percent interest factor, the Secretary need not, unless he deems them proper, include any other "fixed charges." If such costs exceed an amount equal to the revenues which would be collected by reason of the minimum 3 percent interest factor, the Secretary is required to include "other fixed charges" to the extent necessary to equal the sum representing such excess. This, however, is the extent of the limitations upon the Secretary's discretion, and if he acts within these limitations, he has followed the criteria prescribed in subsection 9 (c) and the requirements of law have been satisfied. It appears, therefore, that there is nothing in the act of 1939 to prevent the Secretary from fixing rates sufficient to meet "an appropriate share of the annual operation and maintenance cost," interest on "an appropriate share of the construction investment" at 3 percent per annum and "other fixed charges" sufficient to retire all construction costs to be returned from net power revenues.

If we look to the Hayden-O'Mahoney amendment to the Department's Appropriation Act for 1939, we find confirmation of this construction of the Reclamation Project Act of 1939.

The Hayden-O'Mahoney amendment deals expressly with the disposition of power revenues. It contains the specific provision that all revenues, derived from the sale of power *"shall be covered into* the reclamation fund." [Italic supplied.] No reservation of any amount for the payment of special accounts, such as interest in the form of a "profit" to the United States, is made. It is provided that *only after net revenues* derived from the sale of power developed in connection with any such projects *shall have repaid* those *construction costs* of such project *"allocated" to power to be repaid by power revenues* (power construction costs plus subsidy) therefrom shall any part of said net revenues derived from the sale of power developed in connection with such projects go to the United States. Then, by specific instruction, it directs their disposition by providing that they *"shall, after the close of each fiscal year, be transferred to and covered into the General Treasury as 'miscellaneous receipts.'"* [Italic supplied.] No clearer reflection of congressional intention with respect to the application to be made of revenues derived from irrigation power undertakings could be found. There appears to be no conflict, therefore, between the Hayden-O'Mahoney amendment and section 9 of the act of 1939, and I find nothing in either act which would require the Bureau of Reclamation to change what appears to be its past practice with respect to the application of power revenues. That practice appears to have been to retain in the reclamation fund, as a part of net power revenues, collections, representing the interest element, where, it is reasonable to presume, they have been available for application against reimbursable costs not otherwise paid. This practice was in accord with a number of statutes dealing with specific projects which called for the application of all revenues from power to the credit of the projects.[8]

It appears to be a matter of common knowledge that in many irrigation project undertakings the amount representing the irrigation subsidy is in excess of the amount which it is anticipated will be realized by a 3-percent interest return on the power investment. That there is authority to include in rate schedules as one of "such other fixed charges as the Secretary deems proper" an element representing some part of the subsidy, in order to avoid a deficit, is not questioned. There is objection, however, to a construction of the provisions

[8] See, e. g., act of April 6, 1906 (34 Stat. 116, 117), as amended; act of March 4, 1929 (45 Stat. 1562, 1592); act of May 14, 1930 (46 Stat. 279, 308); act of August 9, 1937 (50 Stat. 564, 592).

of subsection 9 (c) which would require there should be included an element reflecting repayment of the full amount of the subsidy, in addition to the interest element, the revenues resulting from which are applied against the repayment of the subsidy.

It is argued that the contention of the Bureau of Reclamation is fortified by past practices whereby rate schedules have been such as to produce revenues from the sale of power sufficient to meet all construction costs to be returned from power revenues in addition to an amount equal to 3 percent of the power construction costs. It is necessary only to point out that insofar as such a practice has existed, it is of no assistance in the construction of the legal requirements of rate schedules. Such a practice is entirely consistent with the view that the Secretary may "if he deems proper" include such factors as "other fixed charges." The practice throws no light, as an administrative construction, on the question whether the Secretary is required to include such factors as "other fixed charges." It indicates that he may, not that he must.

I have been cited two instances which are alleged to indicate an understanding on the part of certain members of the House committee which considered the bill that rates for the sale of power must be such as to return all costs allocated to power to be repaid from power revenues and in addition a 3-percent interest charge on the power investment. One such instance was an exchange between Congressman Mundt and Commissioner Page as follows:

"Mr. MUNDT. Who gets the profits of the allocation? You say that the profits go to the Government. Do you mean to the United States Treasury?

"Mr. PAGE. Yes, sir.

"Mr. MUNDT. Not to the Bureau of Reclamation.

"Mr. PAGE. It goes in the reclamation fund and is available for reappropriation by Congress.

"Mr. MUNDT. And can be spent without a separate appropriation?

"Mr. PAGE. No, sir; only after specific appropriation.

"Mr. HORTON. That part allocated for power pays for itself.

"Mr. PAGE. Yes, sir. The revenue goes into the reclamation fund until the allocation is repaid, then they go to the Treasury.

"Mr. MUNDT. Does the Secretary of the Interior—is he compelled to sell this power to the highest bidder?

Mr. PAGE. No sir. Rates are established to return the obligation, with interest, and the power is not auctioned." (Hearings, House Committee on Irrigation and Reclamation, 76th Cong., 1st sess., p. 144).

The other incident occurred in a debate on the floor of the House during consideration of the conferee's report. The following exchange occurred between Congressman Rich and Congressman White:

"Mr. RICH (after quoting manager's statement as to Senate amendment). What reduction was made in the rate of interest?

"Mr. WHITE of Idaho. One-half of 1 percent, and the Government still makes a big profit, because it borrows money at a lower rate than the rate fixed in this bill. The Government is making a profit on the interest, and we have extended those benefits to these reclamation projects." (84 Cong. Rec., p. 10220.)

I think it is clear that neither of these incidents throws any particular light on the narrow question in issue.

Even greater stress is laid by the Bureau of Reclamation on the implications of the Acting Secretary's letter of June 9, 1939,[9] in which the following statement concerning section 9 of the act appears:

"The provisions of this section are substantially in accordance with recent special acts of Congress relating to multiple-purpose projects constructed by the Bureau of Reclamation and would give effect to sound public policy." (H. Rept. 995, 76th Cong., 1st sess., p. 5.)

This paragraph in itself is of little significance. It is necessary to examine the "recent special acts of Congress relating to multiple-purpose projects" to which it refers and to explore what might have been intended by the phrase "give effect to sound public policy."

The "special acts" referred to include the Boulder Canyon Project Act.[10] An examination of this act indicates that it varies in material respects from section 9 of the Reclamation Act of 1939. In fact, the act varies so materially that little is to be gained by comparison. For example, it requires the return

[9] See H. R. 995, 76th Cong., 1st sess., pp. 5, 6.
[10] Act of December 21, 1928, ch. 42, 45 Stat. 1057.

of the total cost of the project including the allocation to flood control with interest at 4 percent per annum. Under the act of 1939, it is not contended that interest be returned on the irrigation subsidy and subsection 9 (a) provides for writing off costs allocable to flood control and navigation. Under section 9, therefore, not only is it unnecessary to collect interest on flood control and navigation costs, but it is even unnecessary that the costs themselves be returned. It is thus obvious that the Boulder Canyon Project Act is of no assistance in interpreting the meaning of section 9 of the act of 1939. Of the other multiple-purpose project acts in operation or under construction at the time the 1939 act was under consideration,[11] none, with the exception only of that relating to Black Canyon,[12] contained any provisions whatever as to rates for the sale of power or the requirements for repayment from power revenues.

Whatever significance is to be derived from the Acting Secretary's letter thus must be found in his statement that section 9 of the act of 1939 would put into effect "sound public policy." It is argued by the Bureau of Reclamation that this "sound public policy" is to be found in the Bureau's practice in establishing rate schedules under the special acts referred to. This practice seems to have been one which included an interest charge over and above charges sufficient to amortize the entire cost of the project. Admittedly, however, such schedules were established as a matter of policy and not as a matter of legal requirement. The implication of the Acting Secretary's letter would thus appear to go no further than to suggest that under section 9 of the act of 1939, a similar policy could be followed. There is no necessary implication that such a procedure should be followed as a matter of law.

In these circumstances, I am confronted with a situation in which the language of the legislation in question is perfectly clear but the legislative history of doubtful intent. Ordinarily, legislative history is invoked when it can throw light on statutory language which is susceptible of more than one meaning. Such is not the case here. To deviate from the interpretation I have placed on section 9 of the act of 1939 would require reading something into the act which is not there. In order to accomplish this, I am asked to resort to legislative history which is itself capable of several meanings. It would be a curious reversal of ordinary canons of statutory interpretation to follow such a course.

Considerable point is made by the Bureau of Reclamation of the practices of the Bureau in establishing rate schedules and of representations made to Congress since the passage of the 1939 act. It is contended that representations thus made and appropriations made by the Congress in consequence thereof are entitled to great weight in determining the requirements of that act.

But most of the colloquies between Bureau representatives and members of appropriations committees are ambiguous, subject to a meaning which is consistent with the contentions of the Division of Power as well as with those of the Bureau of Reclamation. In a discussion between Commissioner Page and Congressman Carter in connection with H. R. 8745, 76th Congress, 3d session, which was the first appropriation act following the enactment of the 1939 act, Commissioner Page observed that "under the 1939 act it is contemplated that money allocated to power should pay interest, and the water end of it would be interest free." (House hearings, p. 382.) When Commissioner Page testified before the Senate Subcommittee on Appropriations in connection with the same bill, he assured Senator Taft that "power always carries interest. The rates are set to repay investment with interest." (Supplemental hearings, Senate Subcommittee on Appropriations, p. 27.)

In connection with H. R. 4590, which became the act of June 28, 1941, the second annual appropriation act after the enactment of the 1939 act, Commis-

[11] The following acts involve situations of that kind: The acts of June 5, 1924 (43 Stat. 416) and March 4, 1929 (45 Stat. 1590), relating to the Black Canyon Powerplant and the Deadwood Reservoir, Boise project; the acts of March 4, 1929 (45 Stat. 1592) and April 9, 1938 (52 Stat. 210), relating to the Shoshone powerplant; the act of May 14, 1930 (46 Stat. 279, 308), relating to the Yakima-Prosser powerplant; the several appropriation acts relating to the Kendrick project, beginning with the act of June 22, 1936 (49 Stat. 1757, 1784) (these must be considered along with the finding of feasibility of August 30, 1935, which was premised on the use of power revenues to retire a part of the cost that might properly be chargeable to irrigation); and the act of August 9, 1937 (50 Stat. 564, 593, and 595), relating to the Rio Grande project and to the Colorado-Big Thompson project. Reference should be made also to the acts of August 30, 1935 (49 Stat. 1028, 1039), and August 26, 1937 (50 Stat. 850), which related to Grand Coulee Dam, Parker Dam, and the Central Valley projects, which were multiple-purpose projects under construction when the 1939 project act was being considered, but for which at that time no provision had been made for the allocation of costs, nor for the terms on which power would be sold.

[12] Act of March 4, 1929, ch. 705 (45 Stat. 1562).

sioner Page told Congressman Fitzpatrick that power prices were "based on taking care of the operation of the plant, amortization of the investment within the period which the law permits, and the payment of 3 percent on the cost of construction." In answer to a question by Congressman Sheppard, the Commissioner said:

"* * * We establish a rate at a figure which we think will yield, with the output which we have, the operating cost, the amortization, and the interest; and that is the rate at which we sell the power, and that varies in each case with the investment involved, because of amortization and interest." (Hearings, House Subcommittee on Appropriations, 77th Cong., 1st sess., p. 613.)

Later in the same hearings, Commissioner Page told Congressman Leavy that "No interest is charged on the cost of construction for irrigation. That charged to power is repaid with interest." (Hearings, p. 634.)

In connection with H. R. 6845, which become the act of July 2, 1942, the third appropriation act after passage of the 1939 act, Commissioner Page in response to a question by Congressman Leavy stated:

"Expenditures for irrigation are reimbursable under the law. That must be repaid in 40 years without interest. Costs allocated to power in multiple-purpose projects are repaid with interest at 3 percent * * *." (Hearings, House Subcommittee on Appropriations, 77th Cong., 2d sess., p. 306.)

When H. R. 6845 was under debate on the floor of the House, Mr. Leavy in discussing the proposed appropriation for the Central Valley project asserted:

"It will cost somewhere between $225 million and $275 million.

"Every dollar of this is to be paid back to the Federal Treasury over a period of 40 years, the reclamation feature without interest and the power feature with interest." (88 Congressional Record, p. 5721.)

In connection with H. R. 2719 which became the act of July 12, 1943, the fourth annual appropriation following enactment of the 1939 act, Commissioner Page, in response to a question by Congressman Norrell, made the following explanation before the House Subcommittee on Appropriations:

"Most of the projects now being constructed were authorized prior to the enactment of the 1939 act; however, the practice of the Bureau previous to the enactment of the 1939 act was analogous to the procedure set up in the 1939 act. This practice in substance consisted of allocating to each use that portion of the project that was used exclusively for that particular purpose and the common works were likewise allocated as could best be determined on the basis of use. After these allocations had been made, consideration was given to the ability of the water users to repay the costs properly charged to them as well as the benefits they could be expected to receive from the construction. The result of such an allocation in most cases has been that a certain part only of the project cost properly allocated to irrigation be repaid by charges made to the water users. The rest of the allocation to irrigation uses and, of course, all of the allocation to power, will be returned by power revenues."

It will be observed that in these conversations loose language is frequently employed both by the Commissioner and by members of the committee. I am impressed, however, with the thought that such expressions as "power features," "irrigation features," "power costs," "costs allocated to power in multiple-purpose projects" are employed to identify the construction allocations of the power and irrigation features, as the case may be. For example, in Commissioner Page's testimony, last quoted, he says:

"* * * The result of such an allocation in most cases has been that a certain part only of the project cost properly allocated to irrigation be repaid by charges made to the water users. The rest of the allocation to irrigation uses and, of course, all of the allocation to power, will be returned by power revenues."

This immediately suggests that both the Commissioners and his hearers distinguished between the power investment and the irrigation investment. It is reasonable to assume therefore that when the committee members were assured that "costs allocated to power" were collected with interest, and when they themselves made such statements as "the reclamation features [are rapid] without interest and the power feature with interest," it was understood that in addition to interest thereon, only power costs would be reflected in the rates. I am persuaded that insofar as the legislative history of the four appropriation acts since enactment of the 1939 act refer to the requirements for rate schedules, I could go no further than to conclude that these requirements, in addition to operation and maintenance cost, include only the amortization of the power investment

plus 3 percent interest thereon, unless "other fixed charges" are necessary to insure complete repayment of reimbursable costs. In other words, if it were permissible to consider this material, it would support the contention of the Division of Power as such, if not more than that of the Bureau of Reclamation.

To all of these statements, however, I am not disposed to attach significance. Statements subsequently addressed to Congress may not be invoked to alter what otherwise would be the plain meaning of a statute. Since I find no ambiguity in the terms of section 9 of the act of 1939, I am unwilling to look to later declarations either by administrative officials or by members of appropriation subcommittees to make them ambiguous.

It has been suggested that the mere use of the word "interest" in subsection 9 (c) of the act of 1939 indicates a congressional intention that rate schedules be established which will return sufficient revenues to meet the requirements set forth in subsection 9 (a) of that act and in addition a "profit" of 3 percent on the power investment. "Interest," it is argued, implies a "profit" on investment. It implies the collection of a sum in addition to the amount on which the interest is charged. To use this sum for the purpose of reimbursement of the capital on which it is charged is to defeat the very purpose of its requirement. If the validity of this reasoning be conceded, I think it is answered by a consideration of the character of projects like Grand Coulee. The Reclamation Act of 1939 contemplated vast multiple-purpose projects, projects which would serve the ends of irrigation, power generation, navigation and flood control. The provision in subsection 9 (a) for allocation of costs to different functions suggests that the Congress regarded such projects, for purposes of fiscal planning and accounting, as interrelated but nevertheless separate enterprises. The costs for navigation and flood control purposes are to be borne in one way, costs for power construction in another, and costs for reclaiming and irrigating agricultural land in still a third manner. It seems to me not unusual to use the word "interest" as a return to be realized on one enterprise even though a part of the revenues from that enterprise are required to reimburse the reclamation fund for a capital investment in another enterprise. Since the returns from power investments are more generous than the returns from investments for irrigation purposes, it is only natural to suppose that the Congress anticipated the former to yield a return which could be applied to subsidize the latter.

I am not prepared, however, to concede the validity of the proposition that to use revenues collected by reason of an interest factor for the purpose of reimbursement of capital on which it is charged is to defeat the purpose of its requirement. It is a question-begging proposition. The fallacy lies in the assumption as to the purpose of the interest requirement. It does no violence to common sense to assume that the 3 percent interest requirement in subsection 9 (c) was intended to insure minimum rates for power in cases where a 40-year amortization plan would otherwise make possible rates which would return revenues less than an amount equal to 3 percent on the power construction costs. It is to be remembered that the Congress has been sensitive to the competitive position of Government power projects, and it is not unreasonable to assume an intention only to insure power rates which, under no circumstances, could be less than those which would return, in addition to operation and maintenance costs, an amount equal to 3 percent on the construction investment. In other words, the Congress may well have been concerned at this point with a minimum rate schedule rather than an enterprise which would insure a net profit to the Government. The device of requiring an interest component in the rate schedule was one method of attaining this objective.

It accordingly is my conclusion that the minimum legal requirement of subsection 9 (c) of the act of 1939 may be met by the establishment of rate schedules which will return:

(1) The share of operation and maintenance expenses chargeable to power development.

(2) Interest at not less than 3 percent on the power construction costs, and

(3) As "other fixed charges," an amount equal to any excess over total net power revenues which would otherwise exist in the construction costs allocated to power to be returned from power revenues.

The Secretary may, if he deems them proper, include still other "fixed charges." His discretion under this provision is sufficiently broad to enable him to include charges which will produce revenues sufficient to equal all construction costs allocated to power to be returned from power revenues, including costs allocated to irrigation which are beyond the ability of the water users to repay, in addition

to the returns representing interest at not less than 3 percent annually on the power construction investment. He is not, however, so required by law.

Question II is whether the interest element in the rate schedule, which is to be computed on the part of the construction cost properly chargeable to power, must be calculated on that interest base from the time the investment was made. It raises a preliminary question, however, whether interest during the period of construction should be regarded as a part of the construction cost of the project. If it should be so regarded, it would seem clear that the interest element in the rate schedule should not be calculated from the time of making the investment, since the part chargeable for the period of construction already would be reflected in the rate schedule. If it should not be so regarded, there would remain the question whether the Secretary, in fixing rates which would produce revenues "at least sufficient to cover * * * interest on an appropriate share of the construction investment at not less than 3 per centum per annum * * * " is nevertheless required to compute the interest from the time of the investment.

While interest during construction has been treated in some situations as a part of the cost of the project,[13] two considerations tend to negative the propriety of its inclusion here. First, subsection 9 (a) of the Reclamation Project Act of 1939, which provides for cost allocations reports, speaks in terms only of "the estimated cost of the proposed construction" and "the part of the estimated cost which can properly be allocated" to irrigation, power, and other purposes. This language, in the absence of more specific provisions, seems to be addressed only to capital investment. Secondly, if interest during construction should be included as a part of the project cost, it would seem that it reasonably should apply alike to the parts of the construction cost allocable to power and to irrigation, whereas interest historically has not been included in the financing of irrigation.[14] I therefore conclude that interest during construction need not be included as a part of the cost of the project. The question as originally submitted therefore remains to be answered.

A casual examination of the provision for interest in the rate schedule would raise the suggestion of a requirement that it be calculated from the date of investment.[15] Administrative practice prior to the enactment of the 1939 act was not uniform.[16] Two considerations, however, lead me to the conclusion that interest need not be calculated from the date of investment. First, the rate requirements of subsection 9 (c) are "in connection with the *operation* of any project" [emphasis supplied].[17] Secondly, it does not appear that the element of interest during construction has been reflected in any manner in any rate determinations made under subsection 9 (c), and the financial studies reflected in the feasibility reports made in three projects pursuant to subsection 9 (a) are based on calculations of annual revenues and annual charges.[18] In two of these three instances, appropriations of funds have been made by the Congress for project construction.[19] Appropriations made with knowledge of administrative construction and practices are entitled to weight.[20]

It therefore is my opinion that the Secretary is not legally required, for the purposes of ratemaking, to calculate interest on the investment from the time of actual expenditure in construction and that it may be calculated from such subsequent point of time as would be factually most consistent with the legal

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[13] See, e. g., *In the Matter of Clarion River Power Co.*, 1 F. P. C. Rept. 269, 314 (1935).

[14] See S. Doc. 36, 76th Cong., 1st sess., p. 30.

[15] See hearings, H. R. 4852, House Subcommittee on Appropriations, 76th Cong., 1st sess., p. 334. See also ibid., p. 437. Hearings, H. R. 6984, House Committee on Irrigation and Reclamation, 76th Cong., 1st sess., p. 144; 81 Congressional Record 10220.

[16] See, on the one hand, the financial studies for the Colorado-Big Thompson project (S. Doc. 80, 75th Cong., 1st sess., pp. 31, 32, and 33) and the hearings on an appropriation item for the Rio Grande project (hearings, House Subcommitteee on Appropriations, 75th Cong., 1st sess., p. 316), both of which reflect a policy of charging interest during the period of construction. On the other hand, see hearings, House Subcommittee on Appropriations, 70th Cong., 2d sess., p. 452, in connection with the Black Canyon powerplant, and hearings, House Subcommittee on Appropriations, 76th Cong., 1st sess., p. 286, in connection with the Kendrick project.

[17] In addition, it may be observed that subsec. 9 (c) speaks in terms of annual "operation and maintenance cost," which raises a suggestion that the other factors in the rate base, including interest, may be similarly computed.

[18] Boise project (Anderson Ranch Reservoir) (H. Doc. 916, 76th Cong., 3d sess.); Kings River project (H. Doc. 631, 76th Cong., 3d sess.); Bullshead Dam project (H. Doc. 186, 77th Cong., 1st sess.).

[19] See, e. g., act of June 28, 1941 (55 Stat. 303, 336), which appropriated funds for the Bullshead project "for the purpose and substantially in accordance with the report thereon heretofore submitted under sec. 9 of the Reclamation Project Act of 1939."

[20] *Wells* v. *Nickles*, 104 U. S. 444, 447 (1881); *Brooks* v. *Dewar*, 313 U. S. 354, 360, 361 (1941).

reasons which have led to this conclusion. Such point of time presumably would be that at which the generation of energy begins to produce revenues.

The answers to the questions propounded are thus as follows:

I (a). No.

I (b). Yes.

II. No. Interest may be calculated from an "appropriate" later date.

Respectfully,

(Signed) FOWLER HARPER,
Solicitor.

Approved: September 29, 1944.

(Signed) HAROLD L. ICKES,
Secretary of the Interior.

M. 33473 (Supplemental)

MINIMUM REVENUE REQUIREMENTS FOR COLUMBIA BASIN (GRAND COULEE) PROJECT

Opinion, September 10, 1945

COLUMBIA BASIN (GRAND COULEE) PROJECT—POWER DEVELOPMENT—MINIMUM REVENUE REQUIREMENTS—REPAYMENT PERIOD

There is no specific statutory period under the Reclamation Project Act of 1939 (53 Stat. 1193), within which the costs allocated to be repaid from net power revenues thereunder must be repaid. The repayment period accordingly may be such as the Secretary of the Interior in his discretion shall determine to be proper for each project, within the useful life of that project.

The Reclamation Project Act, *supra*, specifies no period within which there must be repaid that portion of the costs "properly chargeable to irrigation but which are beyond the ability of the water users to repay" (the irrigation subsidy). The repayment period accordingly may be such as the Secretary of the Interior in his discretion shall determine to be proper for each project, within the useful life of that project.

COLUMBIA BASIN (GRAND COULEE) PROJECT—MINIMUM REVENUE REQUIREMENTS—RATE SCHEDULES—INTEREST BASE

The estimated power construction investment constituting the base upon which the 3-percent interest element in the rate schedules established under subsection 9 (c) of the Reclamation Project Act of 1939, *supra*, is calculated, is not subject to diminution in any manner by reason of net revenues being applied under the Hayden-O'Mahoney amendment (52 Stat. 291, 322).

Harper, *Solicitor.*

UNITED STATES DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SOLICITOR,
Washington 25, D. C., September 10, 1945.

M. 33473 (Supplemental).

The honorable the SECRETARY OF THE INTERIOR.

MY DEAR MR. SECRETARY: By a joint memorandum of May 28, which you submitted to me on May 31, the Director of the Division of Power and the Commissioner of the Bureau of Reclamation recommended that certain legal questions raised therein be submitted to me for an opinion. The memorandum summarizes the holding in my opinion (M. 33473) approved by you on September 29, 1944, concerning the minimum legal requirements for rate schedules to be established for the sale of electrical energy from the Grand Coulee Dam, Columbia Basin project, under subsection 9 (c) of the Reclamation Project Act of 1939 (53 Stat. 1193, 43 U. S. C. sec. 485),[1] and concludes that two additional questions require answer in order to determine "the minimum revenue requirements." The first question is as follows:

"Within what period of time must there be returned to the United States:

(a) The estimated construction costs properly allocated to power?

[1] The summarization reads: "To the end of producing revenues sufficient to return to the United States, in addition to estimated operation and maintenance costs of the commercial power system, all estimated construction costs allocated to be returned from power revenues (i. e., estimated commercial power system construction costs plus subsidy, if any) the required minimum factors which rates for the sale of power must return, stated on an annual basis, are 3 percent of the construction investment properly allocated to power and such additional amounts, under the caption 'other fixed charges,' as are needed for the purpose of providing revenues sufficient to meet these costs."

(b) The estimated costs, if any, properly allocable to purposes other than power but which are allocated to be returned from power revenues (i. e., the subsidy)?"

The memorandum refers to the fact that the joint report of the Bonneville Power Administration and the Bureau of Reclamation on the allocation and repayment of the costs of the Columbia Basin project, approved by you on January 31, states that no period for amortization (i. e., repayment) is expressly fixed by law, and that the implicit legal requirement would appear to be that costs be amortized within a reasonable period, and of course, within the useful life of the project. The memorandum states that since the repayment period chosen in the Columbia Basin allocation report coincides with the repayment period fixed by law for the water users (40 years, plus the development period, if any), the explicit question of the maximum length of the repayment period or periods for power construction costs and subsidy, if any, did not have to be considered. It accordingly was deemed advisable to present the question for formal determination by the solicitor.

It is my opinion, answering part (a), that there is no specific statutory requirement with respect to the period of time within which power construction costs are to be repaid. It accordingly appears that there may be established a period of time based upon what is generally regarded in similar undertakings as a reasonable repayment period, within the useful life of the project, taking into consideration the circumstances of each individual project. Answering part (b), it is my opinion that the repayment period for that part of the estimated costs properly chargeable to irrigation but beyond the ability of the water users to repay (the irrigation subsidy) may be established in a manner similar to that established for the repayment of power construction costs.

A review of the Reclamation Project Act of 1939 and related legislation discloses no provision specifying a time within which repayment of construction costs allocated to be repaid from power revenues must be made. Such repayment provisions as are contained in the act refer to repayments to be made under water service contracts with municipalities (subsec. 9 (c), first sentence), or water users (subsec. 9 (d)), both types specifying repayment within 40 years. The legislation is silent with respect to the length of the repayment period within which the Government is to repay to itself "the part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues" (subsec. 9 (a) (5)).

The fact that no period of time was specified within which there was to be accomplished the repayment of the amount properly allocable to power appears not to have been an oversight. Such meager records as are available on the legislative history of this phase of the 1939 act disclose that the matter of a repayment period was considered. In a preliminary draft, dated March 27, 1939, of the controversial fourth sentence of the proposed subsection 9 (c), the Department provided a specific period of time within which such repayment was to be effected. The preliminary provision was to the effect that any sale of electric power or lease of power privileges made by the Secretary in connection with the operation of any works constructed under the Federal reclamation laws, "shall be at such rates as in his conclusive judgment will produce power revenues, which shall be covered into the reclamation fund, sufficient to return in 40 years with 3½ per centum of interest, an appropriate share, as determined by the Secretary, of that part of the construction costs allocated by the Secretary to power: * * * " As finally approved, the provision read as follows:

" * * * Any sale of electric power or lease of power privileges, made by the Secretary in connection with the operation of any project or division of a project, shall be for such periods, not to exceed 40 years, and at such rates as in his judgment will produce power revenues at least sufficient to cover an appropriate share of the annual operation and maintenance cost, interest on an appropriate share of the construction investment at not less than 3 per centum per annum, and such other fixed charges as the Secretary deems proper: * * * "

Differing circumstances exist with respect to the various project undertakings. A repayment period suitable for one project might not be suitable for another. The solution apparently decided upon was to leave to the discretion of the Secretary of the Interior the determination of an appropriate time within the useful life of each project during which repayment should be required. The 40-year limitation imposed by the provision as finally approved clearly applies to the duration of contracts to be entered into for the sale of power or leases

of power privileges in connection with the operation of power projects, and not to repayment of the project costs.[2]

I accordingly conclude as to part (a) that there is no specified statutory period within which the repayment of costs allocated to be repaid from net power revenues must be made, and that the repayment period therefore may be such as the Secretary of the Interior in his discretion shall determine to be proper to effect repayment within the useful life of each project.

The portion of the costs "properly chargeable to irrigation but which are beyond the ability of the water users to repay within the statutory repayment period" (the irrigation subsidy), is conceded to constitute "part of the estimated cost which can properly be allocated to power and probably be returned to the United States in net power revenues." Since it clearly is not intended to be regarded as an irrigation charge required to be repaid by the water users, it accordingly is not governed by the repayment period applicable to such charges. It is a charge, in addition to the power construction costs, which is required to be repaid from power revenues, if the project is to meet the test of feasibility laid down in section 9 (a) of the Reclamation Project Act of 1939. I accordingly conclude as to part (b) that, as in the case of power construction costs, no specific statutory repayment period is prescribed for the return of such charge and the repayment period acocrdingly may be such as the Secretary of the Interior in his discretion shall decide to be proper for repayment within the useful life of each project.

The second legal question is as follows:

"Is the estimated construction investment properly allocated to power upon which the 3-percent factor is calculated subject to diminution in any manner by reason of net revenues being applied, under the Hayden-O'Mahoney amendment,[3] against that construction investment, and, if so, to what extent?"

It is my opinion that the estimated power construction investment constituting the base upon which the 3-percent interest element in the rate schedule is calculated is not subject to diminution in any manner by reason of any revenues being applied, under the Hayden-O'Mahoney amendment, against that construction investment.

Four views are submitted as having been advanced on this question:

"(*a*) The 3-percent return (as distinguished from the return, if any, for 'other fixed charges') is required upon the construction investment without reduction, until the total return equals the investment, after which it may be discontinued.

"(*b*) The 3-percent return (as distinguished from the return, if any, for 'other fixed charges') is required upon the construction investment without reduction as long as power is sold.

"(*c*) The 3-percent return (as distinguished from the return, if any, for 'other fixed charges') is required only upon the construction investment reduced by that portion of the total power revenues that have been collected and applied to repayment of the construction investment.

"(*d*) The 3-percent return (as distinguished from the return, if any, for 'other fixed charges') is required upon the construction investment reduced by the amount by which that portion of total power revenues previously collected has exceeded the 3-percent return and has been applied to repayment of the construction investment."

Views (*a*), (*b*), and (*c*) are self-explanatory. View (*d*) assumes that for some reason (e. g., unanticipated volume of sales), net power revenues in amounts greater than 3 percent of the investment as originally calculated may become available for application against repayment of that investment, and asks, as I

[2] This interpretation is consistent with the general policy of the Congress as more expressly indicated with respect to the marketing of surplus energy from the Bonneville project. In sec. 7 of the Bonneville Project Act (50 Stat. 731, 16 U. S. C., sec. 832f), it is provided that rate schedules shall be established to amortize the Government's investment "over a reasonable period of years." Pursuant to this provision, a 50-year amortization period was established by the Federal Power Commission in its allocation order issued June 26, 1945. Sec. 5 (a) of the Bonneville Project Act authorizes the making of power sales contracts with a maximum term of 20 years. This act indicates a legislative policy of limiting the term of contracts to specified periods, thus giving the Government and purchasers an opportunity to negotiate suitable new contracts, but allowing the overall amortization period to vary with particular projects depending upon what is reasonable in the particular case.

[3] Act of May 9, 1938 (52 Stat. 291, 322, 43 U. S. C., sec. 392 (a)).

understand it, whether the annual interest calculation in such event could be made on the investment base reduced by the revenues derived from the excess over the 3-percent interest element. Since there is involved the same basic question posed in view (*c*), namely, whether the 3 percent may be calculated on a reduced investment base, the two will be considered together.

View (*b*) in my opinion is the only one for which there is authoritative support. For the reasons stated in my opinion of September 29, 1944 (M. 33473), this conclusion necessarily is required. Since that opinion supports only view (*b*), and therefore precludes acceptance of views (*a*), (*c*), and (*d*), it appears advisable to review those portions of it which established unequivocally that not only is the interest element of the rate schedule to continue so long as power is sold, but also that the "appropriate share of the construction investment" upon which the 3-percent element of the rate schedule is to operate is the power construction costs and not an amount representing those costs on an annually diminishing basis.

On page 6 it was stated that:

"* * * I believe that a proper interpretation of section 9 of the Reclamation Act of 1939 and the Hayden-O'Mahoney amendment to the Department's appropriation act of 1939 require that the minimum rate schedule to be such as to produce [on an annual basis] revenues sufficient only to meet in addition to the return for operation and maintenance costs, *an amount equal to 3 percent of the power construction costs* with the proviso that if total revenues thus produced are insufficient to repay all costs allocated to power to be repaid by power revenues, 'other fixed charges' must be included in the rate schedule to produce revenues sufficient to repay such costs. * * *" [Italic supplied.]

On page 7 the opinion stated:

"* * * It appears, therefore, that there is nothing in the act of 1939 to prevent the Secretary from fixing rates sufficient to meet 'an appropriate share of the annual operation and maintenance cost,' *interest on 'an appropriate share of the construction investment' at 3 per centum per annum* and 'other fixed charges' sufficient to retire all construction costs to be returned from net power revenues. [Italic supplied.]

"The Hayden-O'Mahoney amendment deals expressly with the disposition of power revenues. *It contains the specific provision that all revenues derived from the sale of power 'shall be covered into the reclamation fund.' No reservation of any amount for the payment of special accounts,* such as interest in the form of a 'profit' to the United States, *is made.* It is provided that *only after net revenues* derived from the sale of power developed in connection with any such projects *shall have repaid* those *construction costs* of such project *'allocated' to power to be repaid by power revenues* (power construction costs plus subsidy) therefrom shall any part of said net revenues derived from the sale of power developed in connection with such projects go to the United States. Then, by specific instruction, it directs their disposition by providing that they *'shall, after the close of each fiscal year, be transferred to and covered into the General Treasury as "miscellaneous receipts."' No clearer reflection of congressional intention with respect to the application to be made of revenues derived from irrigation power undertakings could be found.* There appears to be no conflict, therefore, between the Hayden-O'Mahoney amendment and section 9 of the act of 1939, and *I find nothing in either act which would require the Bureau of Reclamation to change what appears to be its past practice with respect to the application of power revenues. That practice appears to have been to retain in the reclamation fund, as a part of net power revenues, collections representing the interest element, where, it is reasonable to presume, they have been available for application against reimbursable costs not otherwise paid.* This practice was in accord with a number of statutes dealing with specific projects which called for the application of all revenues from power to the credit of the projects. * * *" [Additional italic supplied.]

In the original joint submission of questions which resulted in my first opinion the term "an appropriate share of the construction investment" was conceded to refer to the power construction costs. That view was found to be supported by the history and related legislation affecting reclamation power projects and for that reason will not be further discussed here.[4]

Clearly it was intended by the Hayden-O'Mahoney amendment that there should be continuing revenues flowing annually from reclamation power projects which, after accomplishing the payment of the costs allocated to power to be paid from

[4] See p. 5, footnote 5, of Opinion M. 33473, approved September 29, 1944.

power revenues (power construction costs plus subsidy) should thereafter, at the close of each fiscal year not be retained in the reclamation fund, reduced by virtue of a diminished base, discontinued, or otherwise diverted, but be transferred and covered into the Treasury as "miscellaneous receipts." The minimum requirements of the rate schedule include two elements the revenue from which is earmarked for specific application (operation and maintenance costs). The only element, assuming a case where a rate schedule would reflect only the minimum legal requirements (and "other fixed charges" would not be involved), which could supply the "net revenues" which at the end of each fiscal year after full repayment of costs allocated to be paid from power revenues "shall * * * be transferred to and covered into the General Treasury as 'miscellaneous receipts,'" would be the interest element.

If the views expressed in (*a*), (*c*) and (*d*) were to be seriously entertained, there would result a negation of this obvious intention and purpose of the Hayden-O'Mahoney amendment, a statute which my first opinion concluded necessarily must be construed in conjunction with the provisions of the Reclamation Project Act of 1939 in the determination of the application or disposition to be made of the revenues authorized by the 1939 act to be collected, since whether the interest element were discontinued entirely after the revenue return equalled the original costs allocated to power to be paid therefrom (view (*a*)), or were constantly lessened on a diminished balance of the investment basis, as proposed by views (*c*) and (*d*), there would remain either nothing under view (*a*), or only a perpetually diminishing but never ending amount under views (*c*) and (*d*), which "after the close of each fiscal year [shall] be transferred to and covered into the General Treasury as 'miscellaneous receipts.'"

In my previous opinion, I concluded that "other fixed charges" were necessary under subsection 9 (c) of the 1939 act only if the net revenues derived through the 3-percent element of the rate schedule were insufficient to accomplish the return of both the power construction costs and the irrigation subsidy within the repayment period chosen by the Secretary. The application of view (*c*) would result in constantly diminishing net revenues attributable to the 3-percent element because the base upon which the 3-percent is calculated thereunder would constantly diminish. In order to return within the prescribed repayment period both power construction costs and the subsidy, the element representing "other fixed charges" would as the result of the application of that view have to be correspondingly increased. Even assuming that in some years net revenues other than those attributable to the element, if any, reflecting "other fixed charges" were in excess of 3 percent of the base (view (*d*)), the element for "other fixed charges" would still of necessity have to be increased.

These conclusions may be demonstrated by the following examples: Assume a power construction cost of $10,000 and a subsidy of $5,000 or a total of $15,000 allocated for probable return from net power revenues. Assume also a 50-year period in which that amount is to be returned. Annual net revenues equal to 3 percent of $10,000 (power investment) will return in 50 years the necessary $15,000. If, as I have concluded, the 3 percent is to be calculated on the undiminished power construction investment base, no element for "other fixed charges" is necessary in the rate schedule. However, if view (*c*) applies, the result would be as follows: In the first year there would be net revenues of $300. The "investment" upon which the 3-percent factor is calculated would be reduced to $9,700. There would be a requirement, in order to return all remaining construction costs allocated to be returned from power revenues that net revenues equalling $14,700 be returned over the remaining 49 years of the repayment period. For the second year, application of the 3-percent factor would return only 3 percent of $9,700 or $291. In order to bring the net revenues up to the point where they will equal $15,000 at the end of the 50-year period, an element for "other fixed charges" to the extent of the deficiency resulting must now be included in the rate schedule. If instead of $300 in the first year, the net revenues are $400, so that view (*d*) would operate, the base upon which the 3-percent interest element is to be calculated would, for the second year, be $9,900, rather than $9,700 (on the basis of my understanding that under view (*d*) the base would be reduced by the amount of net revenue in excess of 3 percent). The total net revenue requirement over the remaining 49 years would be $14,600. Three percent of $9,900 is $297. Assuming there were no further excess net revenues during the repayment period, net revenues at the end of the repayment period would total only $14,953. Again, a factor for "other fixed charges" would have to be included in the rate schedule in order to accomplish the return of a total

of $15,000 within the prescribed 50-year period. In the absence of a more definite direction than is to be gathered from existing law, I find it impossible to accept the supposition that the Congress intended the 3-percent interest element and the discretionary authority for the inclusion of other fixed charges in the rate schedules to be manipulated in any such manner.[5]

Finally, I think it should be recognized that the basic reason for including specifically a minimum interest requirement in the rate schedules to be established under subsection 9 (c) of the 1939 act was the evident sensitivity of the Congress to the competitive position of the Government in the power field.[6] The second paragraph on page 14 of my first opinion stated this conviction as follows:

"* * * It does no violence to commonsense to assume that the 3-percent interest requirement in subsection 9 (c) was intended to insure minimum rates for power in cases where a 40-year amortization plan would otherwise make possible rates which would return revenues less than an amount equal to 3 percent on the power construction costs. *It is to be remembered that the Congress has been sensitive to the competitive position of Government power projects, and it is not unreasonable to assume an intention only to insure power rates which, under no circumstances, could be less than those which would return, in addition to operation and maintenance costs, an amount equal to 3 percent of the construction investment.* In other words, the Congress may well have been concerned at this point with a minimum rate schedule rather than an enterprise which would insure a net profit to the Government. The device of requiring an interest component in the rate schedule was one method of attaining this objective." [Italics supplied.]

I think that to attempt to inject into the provisions of the 1939 act any suggestion that the Congress intended that the interest element of the rate schedules should be computed on less than the full amount of the power investment so long as power is sold would be to do violence not only to the language of the act but also to the obvious policy and intention of the Congress.

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[5] The basis for the confusion reflected in views (*c*) and (*d*), it appears, may be attributed to the following statements appearing in a memorandum from the Bureau of Reclamation of June 15, 1944:

"(4) The interest return on the power investment is determined by a financial study of operations during the repayment period. Gross revenues, expenses, and net revenues are calculated, and the net revenues applied against repayment. *Interest is calculated on the unpaid investment each year.* The rate is taken as 3 percent per annum, this being in accordance with the minimum rate provided by sec. 9 of the Reclamation Project Act of 1939 (53 Stat. 1187). (Italics supplied.)

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"(5) In the past, in cases where power revenues have been required both to amortize the power investment with 3 percent and to retire a portion of the irrigation investment, it was the practice to use a sinking-fund method for determining the annual repayments of the power investment. Under this method, the annual installment to cover retirement of the power investment and interest was determined in advance by a formula. All actual revenues in excess of this installment of principal and interest were applied to the irrigation costs. It is our conclusion, however, that this method for calculating return is more stringent than required by the Reclamation Project Act of 1939. Studies now being made, such as on the Columbia Basin project, are proceeding on the premise that all net power revenues will be applied first to the power investment. *Under such a plan, the interest on the power investment is determined each year on the basis of the then remaining balance of the power investment.* Under this plan, the irrigation costs to be repaid from power revenues would be paid only after the power revenues had retired the power investment with interest.

"In no case has the Bureau used the straight-line method of repayment with respect to construction costs to be repaid out of power revenues." (Italics supplied.)

The foregoing statements were based upon a contention, found in my former opinion to be without merit, that an element representing interest as a "profit" to be realized by the United States must be included in the rate schedules established under subsec. 9 (c) of the 1939 act, in addition to elements representing operation and maintenance costs, amortization of the power investment, and repayment of the irrigation subsidy. Nothing is to be gained, therefore, from their use in argument.

[6] While extensive discussion of the matter appears to have taken place in the Department, the only recorded statement which has come to my attention is a memorandum addressed to the Secretary on June 24, 1939, by my predecessor, Solicitor Margold. After stating the language of the sentence as it then appeared with respect to the interest element, the Solicitor stated that his attention has been called to the fact that:

"* * * the 3½-percent minimum probably will be too high in view of contemplated reductions in the interest charges on public-works financing. I understand that the 3½-percent figure was originally fixed by analogy to the rates established for Bonneville power. * * *

"If you concur * * * that a 3½-percent minimum interest return should not be prescribed for power sales, I believe we might appropriately recommend to the committees [of the Congress] the advisability of substituting a standard for fixing the interest return on a basis comparable to the rate charged on comparable public-works projects in the place of the fixed 3½-percent. * * *"

The bill as finally enacted provided for the reduced rate of 3 percent.

In summary, therefore, it is my opinion that the questions submitted to you on May 28, must be answered as follows:

1(*a*). There is no specific statutory requirement with respect to the period of time within which power construction costs are to be repaid. There accordingly may be established a period of time based upon what is generally regarded in similar undertakings as a reasonable repayment period, within the useful life of the project, taking into consideration the circumstances of each individual project.

1(*b*). The repayment period for that part of the estimated costs properly chargeable to irrigation but beyond the ability of the water users to repay (the irrigation subsidy) may be established in the same manner as that established for the repayment of power construction costs.

2. The estimated power construction investment constituting the base upon which the 3-percent interest element in the rate schedule is calculated is not subject to diminution in any manner by reason of any revenues being applied, under the Hayden-O'Mahoney admendment, against that construction investment.

Respectfully,

FOWLER HARPER, *Solicitor.*

Approved: September 10, 1945.

HAROLD L. ICKES,
Secretary of the Interior.

STATEMENT OF THE CHIEF OF ENGINEERS

At the request of Chairman James E. Murray of the Interior and Insular Affairs Committee, who presided at the joint hearings with the Public Works Committee, the Chief of Army Engineers subsequently submitted to the committees the following comments on the testimony previously taken in regard to Missouri River operations:

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D. C., June 7, 1957.

HON. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: Reference is made to your letter of May 10, 1957, relative to the joint hearings on the Missouri Basin projects by the Interior and Public Works Committees of the Senate. In accordance with your request, the following comments are furnished on the testimony presented on May 1–3. We are also prepared to discuss the operation of the Missouri Basin projects in further detail whenever additional hearings are scheduled.

Many questions were raised concerning the basic overall criteria under which the improvements were planned, authorized, operated, and maintained. Those who have testified during the hearings have a very real interest in the operation of the projects in the Missouri River Basin and I appreciate the opportunity to explain the position of the Corps of Engineers. For discussion purposes, these questions, insofar as they relate to responsibilities of the Chief of Engineers, involve the following major matters:

(*a*) Interpretation of the O'Mahoney-Millikin amendment relative to the operation of the projects.
(*b*) Purposes to be served in operating the projects.
(*c*) Allocations of cost to various purposes served.
(*d*) Possibility of reducing the flow in the navigation channel and of shortening the navigation season.
(*e*) Possibility of slack water navigation improvements on the Missouri River.

Before discussing the above matters, I would like to emphasize that I consider the broad overall objective of the Missouri Basin program is to obtain the optimum development and utilization of the water resources of the Missouri River Basin to best serve the needs of the people. This means that maximum sustained public benefits should be provided considering all of the purposes which can be served by the projects. In any large comprehensive development, such as the Missouri River Basin, this requires continuing studies of many related and complex problems involving the interests of many people. It is also essential that we maintain flexibility in the operation plan to meet changing conditions and needs throughout the physical life of the projects.

The Federal civil-works program as authorized by Congress and administered by the Corps of Engineers has grown from small beginnings when the work was limited to navigation improvements in rivers and harbors, until now it involves large programs for control, conservation, and use of the waters of major river basins. While our authorities for such projects stem from flood control and rivers and harbors legislation, we have, since the early 1930's in connection with the preparation of the so-called 308 reports, recognized the importance of comprehensive basin planning to achieve the best overall use of the water resources. Thus, I consider that the Corps of Engineers has no

special interest in the operation of the Missouri River projects, or any other water resources developments under its jurisdiction, except to obtain the maximum sustained public benefits considering all of the purposes which can be served by the projects.

The Corps of Engineers has adhered to and will continue to adhere to the provisions of the O'Mahoney-Millikin amendment in the Missouri River Basin and in all other areas to which it applies. The amendment sponsored by Senators O'Mahoney and Millikin as finally modified and adopted constitutes the entire first section of the Flood Control Act approved December 22, 1944, and of the River and Harbor Act approved March 2, 1945. Section 1 (b) of these acts, which deals specifically with possible conflict in the use of water for navigation with beneficial consumptive uses of water in States lying wholly or partly west of the 98th meridian, is quoted below for convenient reference:

"The use for navigation, in connection with the operation and maintenance of such works herein authorized for construction, of waters arising in States lying wholly or partly west of the ninety-eighth meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the ninety-eighth meridian, of such waters for domestic, municipal, stock water, irrigation, mining or industrial purposes."

The records of the hearings before the subcommittee of the Committee on Commerce, United States Senate, in May and June 1944 on H. R. 4485 (the flood-control bill) and H. R. 3961 (the river and harbor bill) contain extensive discussions of the foregoing. These records establish clearly that the amendment stemmed primarily from fears of western reclamationists that the authorization and development of certain navigation projects would establish a priority for use of waters of navigable streams, which might preclude future developments of irrigation on these streams and their tributaries. The proponents of the amendment repeatedly stressed the need for protection of water rights, heretofore or hereafter vested under State laws, for future irrigation. Occasionally, this was broadened to include upstream beneficial consumptive uses. No mention of any priorities for hydroelectric power generation has been found in the review of these hearings. The discussions centered to a considerable degree around consideration of a plan for improvement of the Snake River (Columbia River Basin) for navigation, and consideration of the proposal for a 9-foot navigation project on the Missouri River from Sioux City, Iowa, to the mouth.

The significance of the above section is the restriction placed on any right which the Federal Government might otherwise have to prevent the use of upstream waters for beneficial consumptive purposes when such waters are needed for the use of navigation in connection with the operation and maintenance of works authorized subject to such section. The purposes for which the projects are to be operated are defined by the legislative authorizations of the specific projects.

The primary purposes of the Missouri River reservoirs as authorized are flood control, irrigation, navigation, and hydroelectric power. The following statement from Senate Document No. 247, 78th Congress, 2d session, establishes the relation of power to other beneficial uses of water:

"Both agencies recognize the importance of the fullest development of the potential hydroelectric power in the basin consistent with other beneficial uses of water."

It was never contemplated in any of the reports submitted to Congress as the basis for authorization that power would be given priority over navigation in determining the plan of operation. Reference has already been made in the testimony to pertinent parts of those reports which clearly established the basis of project operation. If a priority for power were established now, it is believed that the projects could not be operated to obtain optimum overall public benefits.

I believe that the most significant part of the O'Mahoney-Millikin amendment is recognition of the interests and rights of the States in water resources developments. Section 1 (a) of the acts approved December 22, 1944, and March 2, 1945, provides that before any plans, proposals, or reports of the Chief of Engineers, for any works of improvement for navigation or flood control, are submitted to Congress the investigations shall be coordinated with each affected State and the reports submitted to such States for comment and recommendation. This coordination, however, as practiced by the Corps of Engineers, is not limited to reports submitted to Congress but has been extended to include continuing participation in the formulation of operating plans of completed projects. Accordingly, there is extensive and continuing coordination by the Corps of Engineers with the States on the operation of projects under our jurisdiction. The desires

and views of the States are fully considered and complied with insofar as possible and consistent with the authorizations of the projects.

In the Missouri River Basin this coordination is accomplished through the Coordinating Committee on Missouri River Main Stem Reservoir Operations. This committee is composed of Governor-designated representatives from each of the 7 main-stem States, and the official representative of each of the 7 Federal agencies having authority and responsibility directly related to main-stem operations. It is not considered practicable to expand this coordinating committee to include special interests as has been suggested in the testimony, since individual representation for each of the special interests concerned with one aspect or another of main stem reservoir operation would result in unworkably large committee membership. However, it is desirable for all to be absolutely assured that the problems of all affected interests are considered, and it appears that the coordinating procedures might be improved by more specific arrangements for local interests to present their views to the coordinating committee at the times of the committee meetings.

Special plans for operation of the Missouri main-stem reservoirs are prepared each year by the reservoir-control center in Omaha under the guidance of the coordinating committee and then specifically agreed upon by that committee in advance of actual operations. The committee has agreed in advance on all main-stem reservoir operations since Fort Randall was first teamed up with Fort Peck in 1953. The advance plans have also been presented to and considered by the Missouri Basin Interagency Committee in advance of actual operations. Actual reservoir operations have been carried out by the reservoir control center in strict accordance with the plans which have been previously agreed upon. The completeness of coordination maintained is considered outstanding. Information on the authorized Missouri River main-stem reservoirs and the operation of these projects is contained in the attached statement on The Missouri River Main Stem Reservoirs and Their Operation (inclosure No. 1).

Several preliminary allocations of cost have been prepared on the Missouri River main-stem reservoirs for study purposes; however, no final allocation has yet been made. In previous years, there has been general disagreement on the method to be followed in allocating the costs to the purposes served. Several methods of allocating costs have been suggested which have the effect of minimizing the amount of the costs allocated to reimbursable functions. As I indicated in my testimony on March 12, 1956, before the Senate Committee on Public Works with reference to the incremental method of allocation, the adoption of such methods for general application would have serious implications with respect to justifying additional water resource developments.

Major differences among the Federal agencies concerned with allocating costs were resolved in an agreement dated March 12, 1954, among the Department of the Interior, Department of the Army, and the Federal Power Commission. A copy of that agreement is attached (enclosure No. 2). That agreement states that the separable costs-remaining benefits method is considered preferable for general application. Subsequent to that agreement all cost allocation studies for the Missouri River main-stem reservoirs have been on the basis of the separable costs-remaining benefits methods. In this connection, it may be noted that the Subcommittee To Study Civil Works, House Committee on Public Works, in its report dated December 5, 1952 (H. Doc. Print No. 23, 82d Cong., 2d sess.), stated that:

"The subcommittee is favorably impressed by the separable costs, remaining benefits procedure that has been developed by the Interagency River Basin Committee. Under this method it appears that the costs allocated to any function would not exceed the benefits accruing to that function nor would they be less than the separable costs entailed by including that function in the project. The subcommittee is inclined to believe it desirable that this method generally be adopted for future use."

The allocation of costs are based on the purposes served by the plan of improvement and the benefits obtained for each purpose as well as the costs incurred. Accordingly, if power is given priority over navigation and the method of operation modified accordingly, the allocation of costs would have to be adjusted to increase the amount assigned to power and decrease the amount assigned to navigation.

Cost-allocation studies are presently being made by the division engineer, Missouri River division. These studies are being coordinated with the regional offices of the Bureau of Reclamation and the Federal Power Commission. It is not possible to complete these studies and obtain final allocations of cost until

the projects are completed. However, the results of the current studies are available from time to time as necessary and a firm interim allocation will be completed within the next year. The results of the cost allocations in the various stages of the studies have already been reported to the committee in my letter of May 17, 1957.

Further details on the allocations of cost are included in the attached statement on explanation of cost allocations (enclosure No. 3).

It has been suggested that the flow in the navigation channel be reduced during the navigation season or that the period during which navigable depths are maintained by releases from storage be shortened. Successful navigation under present conditions requires about 25,000 cubic feet per second at Omaha and 35,000 cubic feet per second at Kansas City. Any substantial reduction below these amounts would eliminate navigation on the Missouri River except for local movements of sand and gravel. Accordingly, if navigation is to be maintained, flows in substantially the above amounts must be maintained. It is possible, however, to shorten somewhat the period during which navigation depths are maintained as has been done.

Navigation is limited to the ice-free season which is about 8 months at Sioux City and 9 months at Kansas City. Navigable depths were maintained for only 7 months in 1954, 6½ months in 1955 and 7 months in 1956. It is planned to maintain navigation flows for not more than 6½ months in 1957. It may be noted that this is no more than could have been accomplished with Fort Peck alone, which was authorized for the purpose of improving navigation and other purposes incidental thereto. Any substantially greater curtailments in the navigation seasons at this time would be expected to practically disrupt commercial navigation on the Missouri River during the years of such curtailment and to seriously deter the growth of commerce to expected ultimate levels.

An analysis was made of the navigation benefits which would have been foregone and savings which would have been possible in operation and maintenance costs if navigation was not served during the 3 years of 1954–56. The navigation benefits which would have been foregone total about $11 million and the savings in operation and maintenance costs would have amounted to $3,700,000. The additional power revenues which could have been obtained for these 3 years has been estimated at approximately $3,900,000. Thus it is indicated that in this period the actual operations of the Missouri River main-stem reservoirs has resulted in greater net values that could have been realized by operation primarily for power without service to navigation.

Further details on the flow releases for navigation are included in the attached statement (enclosure No. 4).

The suggestion was also made that consideration be given to the possibility of slack-water navigation improvements on the Missouri River. A slack-water navigation project on the Missouri River in place of the existing open-river navigation project would permit substantial reduction in navigation season flows, and increased winter season power releases without curtailment of navigation. There is, however, a limitation on the extent to which releases during the winter may be increased because of the increased hazard from ice jams with higher winter flows. Also, after all main-stem reservoirs are completed and filled, it appears that reduction in summer releases for navigation will have a relatively minor effect on power generation.

It has also been suggested that a large amount of power could be developed at the dams which would provide slack-water navigation. Dams high enough to warrant installation of power generation facilities would inundate appreciable areas of highly developed land and may cause serious drainage problems in adjacent areas.

Studies, generally of preliminary examination scope, of a project for slack-water navigation on the Missouri River from Yankton, S. Dak., to the mouth, were undertaken by the Corps of Engineers during preparation in 1932 of the 308 Report on the Missouri River (H. Doc. No. 238, 73d Cong. 2d sess.). The estimated cost of the locks and dams, not including the cost of river-stabilizing works, was $343 million. About 90 percent of this cost would be applicable to the development of slack-water navigation downstream from Sioux City. Also the cost of the same structures today would be on the order of 2½ to 3 times higher than estimated in 1932. It may be noted that the total estimated cost of the existing project for bank stabilization and navigation is currently estimated at $340,900,000.

Based upon the studies made in 1932, it was concluded that the same benefits could be obtained by open-river regulation at substantially less cost than by canalization.

It appears that economic justification of a slack-water navigation project on the Missouri River must be regarded as questionable. Nevertheless, in view of major physical and economic changes in the Missouri River Basin since prior studies of this type of improvement, it might be desirable to undertake an investigation of preliminary examination scope so that authoritative and up-to-date data on costs and benefits will be available. On the basis of data currently vailable, it is indicated that such a study will require a period of from 2 to 3 years for completion and will cost between $100,000 and $200,000. Additional congressional authorization and appropriation would be necessary before such a study could be undertaken.

Further details on slack-water navigation are included in the attached statement (enclosure No. 5).

The present problems in the Missouri River Basin which occasioned these hearings, insofar as the responsibilities of the Corps of Engineers are concerned, arise from a number of circumstances, some of which are of only an interim character. The principal factors are the low streamflows during recent years, and the necessity to fill the reservoirs as they are completed. Beginning in the summer of 1954, the streamflow averaged only 80 percent of normal through 1956, during the period when the new Fort Randall, Garrison, and Gavins Point Reservoirs were ready for initial filling. The navigation seasons were curtailed 1 month or more each year in 1954, 1955, and 1956, and the season will be curtailed at least 6 weeks in 1957. Power generation rates were less than would have been possible with normal streamflows, however, the operations were deliberately patterned so that all urgent firm power requirements have been met, and total main-stem generation has increased substantially.

Such adversities are only temporary and, with return to normal weather and completion of construction on the main-stem system, beneficial services several-fold greater than those already being realized can and will be furnished the whole length of the Missouri River.

Plans for operation of the main-stem reservoirs under the jurisdiction of the Chief of Engineers are flexible to meet current conditions to obtain the overall maximum public benefits for all purposes. The operation plans are determined annually in advance of actual operations. The operation plans are coordinated in the Basin, and the interest of the States in those plans is recognized through participation of governor-designated representatives in the formulation of such plans. I recommend that no changes be made in those procedures at this time and that no additional priorities of purposes served be established.

Sincerely yours,

E. C. ITSCHNER,
Major General, United States Army,
Chief of Engineers.

[Enclosure No. 1]

(June 7, 1957)

THE MISSOURI RIVER MAIN STEM RESERVOIRS AND THEIR OPERATION

AUTHORIZED PLAN OF WATER RESOURCES DEVELOPMENT FOR THE MISSOURI RIVER BASIN

1. The comprehensive program of water resources development which is now under construction in the Missouri River Basin is popularly termed the "Pick-Sloan Plan." This program is founded primarily on a plan developed by the Corps of Engineers under the leadership of Lt. Gen. Lewis A. Pick (described in H. Doc. 475, 78th Cong.) and a plan developed by the Bureau of Reclamation under the leadership of Mr. W. G. Sloan (described in S. Doc. 191, 78th Cong.), both stemming from data assembled and studies accomplished over a period of several years prior to 1944. Since the basic plans of the two agencies affected the same areas to some extent, representatives of both agencies met to delineate those areas in which there was no duplication and to select the most desirable features of either plan in those areas where the plans were overlapping. The coordinated plan is described in a joint report of both agencies contained in Senate Document 247, 78th Congress. The general comprehen-

sive plans set forth in these documents were approved by the Flood Control Act of 1944 and, together with related projects previously and subsequently authorized by Congress for construction by the Corps of Engineers and the Bureau of Reclamation, constitute the current program of development for the Missouri River Basin.

2. The program is a basic framework of the major elements and the more immediately needed projects of a comprehensive water resources development program which can be expanded and rounded out with added units as future needs and economic conditions may require and justify. It provides for integrated service along five principal functional lines as follows:

(*a*) Flood control along the main stem of the Missouri River and many of its tributaries throughout the basin by means of multiple-purpose reservoirs, on both the main stem and tributaries, supplemented in many areas by flood walls, levees, and other local protection works. Included is an integrated system of levees and flood walls along the Missouri River from Sioux City, Iowa, to the mouth. The basin reservoirs also play an important part in flood control on the Mississippi River.

(*b*) Irrigation of about 5 million acres of land in the subhumid and semiarid central and western sections of the basin (to roughly double the current irrigated area in the basin) by means of the multiple-purpose reservoirs, to provide water supply, and auxiliary systems of diversion dams, irrigation canals, and other distribution works.

(*c*) Sustained minimum flows for stream sanitation and water supply in the Missouri River and many of its tributaries, without harmful diminution by the greatly increased consumptive use of water, by appropriate releases from the multi-purpose reservoirs.

(*d*) Navigation on the lower 762 miles of the Missouri River through a 9-foot draft channel by a continuous system of open-river channel regulation and bank stabilization works from Sioux City, Iowa, to the mouth of the Missouri River near St. Louis, Mo., supported by releases from the multiple-purpose reservoirs to maintain adequate flow levels during the navigation season. The same stabilization works are also a necessary prerequisite to the Missouri River levees and are of vital importance to preventing the river from shifting and destroying rich farmlands, roads, railways, and cities in the valley. The water supply from the multiple-purpose reservoirs also is very important to navigation on the Mississippi River at and below St. Louis.

(*e*) Hydroelectric-power generation from installations totaling 3,200,000 kilowatts at those of the multiple-purpose dams where power is economically justified and compatible with other functions.

3. In addition to these five main functions, the reservoirs of the program will provide many secondary, though important, uses including recreation and fish and wildlife. Although not basically a part of the Pick-Sloan plan, there are also related agricultural programs for improved land use, waterflow retardation, and soil-erosion prevention on the watershed lands throughout the basin.

4. Fundamental in the plan is the basic concept of multiple-purpose overall development, with flexibility in design and operation to meet changing conditions as they occur. It is this basic concept which is the reason for the plan's strong, unified support from all parts of the basin.

MISSOURI RIVER MAIN STEM RESERVOIR SYSTEM

5. The foundation and backbone of the Pick-Sloan plan is the Missouri River main-stem reservoir system. This system will ultimately consist of a series of six reservoir projects on the Missouri River in Montana, North Dakota, South Dakota, and Nebraska.

6. First authorized of these was the Fort Peck Reservoir. Its original authorization, by the 1935 River and Harbor Act, provided for operations primarily for navigation. The subsequent Fort Peck Power Act, approved May 18, 1938, authorized completion, maintenance, and operation of the Fort Peck Reservoir "for the purpose of improving navigation on the Missouri River, and for *other purposes incidental thereto*." The 1944 Flood Control Act authorized construction of the Garrison, Oahe, Big Bend, Fort Randall, and Gavins Point Reservoirs and modification of the operation by the Fort Peck Reservoir to provide a six-reservoir main-stem system authorized to be operated for flood control, irrigation, naviga-

tion, hydroelectric power, and other purposes. Senate Document 247, 78th Congress, one of the project documents, commits both the Corps of Engineers and the Bureau of Reclamation as follows: "Both agencies recognize the importance of the fullest development of the potential hydroelectric power in the basin *consistent with the other beneficial uses of water.*" [Emphasis in this paragraph supplied.]

7. The Fort Peck Reservoir project in eastern Montana is the uppermost of this chain of projects. The dam itself was constructed in the 1930's. The reservoir has a total storage capacity of 19.4 million acre-feet. The first power unit was brought on the line in 1943, and the project now has an installed power capacity with a nameplate rating of 85,000 kilowatts. A second powerplant which will raise the total power capacity to 165,000 kilowatts is now under construction, with completion scheduled in 1961.

8. The Garrison Reservoir project in northwestern North Dakota is the next of these projects in order downstream. Construction has advanced sufficiently for initial storage impoundment to begin in 1954, and approximately 19 million acre-feet of storage space, of the 23 million acre-feet of planned ultimate normal storage capacity, is now available. The first 3 power units came into service in January, February, and May 1956, to complete the planned initial power installation of 240,000-kilowatt nameplate rating. The 2 final power units, to bring the total installed capacity up to the planned ultimate power capacity of 400,000 kilowatts, are scheduled to be in operation in 1960.

9. The Oahe Reservoir in South Dakota and North Dakota is now well under construction. Initial storage impoundment can begin in 1960, and the full reservoir capacity of 23.6 million acre-feet will be available by 1962 or 1963. The first 85,000-kilowatt power unit is scheduled to go on the line by late 1961, and all 7 units of the 595,000-kilowatt ultimate power installation are scheduled to be in service by late 1963.

10. The Big Bend project in South Dakota is now in the final preconstruction planning phase. This is primarily a power project, and is tentatively planned for storage capacity of 1.6 million acre-feet and an ultimate power installation of probably over 200,000 kilowatts. This power is tentatively scheduled to go on the line in 1963 or 1964.

11. The Fort Randall project in South Dakota is essentially completed. Total reservoir capacity amounts to 6,300,000 acre-feet, and the total ultimate power installation has a nameplate rating of 320,000 kilowatts. Initial storage began in 1953, and since mid-1955 the reservoir has been operating within the range of levels planned for the period prior to Oahe closure. The first power unit was placed in service in March 1954, and the final power unit was completed in January 1956.

12. Gavins Point, the lowermost project in the main-stem system, is located in Nebraska and South Dakota. Total storage capacity is 540,000 acre-feet, and the ultimate power installation is 100,000 kilowatts. The entire project was essentially completed in 1956, and it is now in full normal operation.

13. The Corps of Engineers is the construction agency for all six of these main-stem projects, and the Bureau of Reclamation is the transmission and marketing agency for power generated at these projects.

14. For the system, as a whole, planned ultimate storage capacity is approximately 75 million acre-feet, of which 45 million acre-feet space is now actually available. Total nameplate rating of the power installations will be approximately 1,800,000 kilowatts, of which 745,000 kilowatts is now completed. The initial "backbone" transmission-line interconnection of the four operating projects was completed in June 1956 so that, since that time, these projects have been operated on an electrically, as well as hydraulically, integrated basis.

BASIC LONG-RANGE OPERATION PLANNING STUDIES

15. The main objective of planning studies for the operation of the Missouri River main-stem reservoirs has been to make the most effective use of the facilities for all purposes consistent with the authorizations. To assist in attaining this objective, a great many studies have been made, in the years since 1943, in determining the bases for operating the projects. These studies have been developed cooperatively with the Bureau of Reclamation, and the Bureau and the Corps are in agreement on operation planning for these reservoirs. All of these studies have been consistent with the basic manner of main-stem-reservoir operation on which the project documents were predicated. They have been used as

a basis for design of all the reservoir and power facilities. Economic evaluations and payout studies of these projects, by both the Corps and the Bureau, have been predicated on the type of water service and the quantity and quality of hydroelectric power that would be generated with the reservoirs operated in the manner contemplated in these studies. There has been general agreement in these studies by the Federal Power Commission, the Public Health Service, State engineers, and other Federal agencies directly concerned. The Missouri Basin Interagency Committee's report on adequacy of flows in the Missouri River, dated April 1951, and on power requirements and supply, dated May 1953, are further evidences of this agreement.

16. One of the first questions pertaining to the Missouri River main-stem reservoirs was concerned with the water supply available for regulation and its adequacy to serve all the various uses contemplated in the Pick-Sloan plan. Following earlier studies by the various agencies independently, a thorough joint study of the water-adequacy problem was made under the auspices of the Missouri Basin Interagency Committee; and all pertinent data are summarized and the question resolved in a report prepared by the committee in April 1951. One of the major contributions of the committee's study and report was the establishment of sound flow records for the Missouri River back to the year 1898. Using Sioux City, Iowa, as a reference point, the annual runoff during the period 1898 through 1956 has varied as follows:

	Acre-feet
Maximum	36,700,000
Minimum	11,400,000
Average	24,600,000

17. On the average, for the average year, the water contributing to this runoff originates in the following areas:

	Acre-feet
Montana and Wyoming	17,700,000
North Dakota	1,800,000
South Dakota	3,000,000
Other areas above Sioux City	2,100,000
Total	24,600,000

18. For comparison, the annual water supply in the last 3 years has averaged as follows:

1954–56 average of annual runoff in acre-feet

Montana and Wyoming	14,200,000
North Dakota	1,300,000
South Dakota	1,100,000
Other areas above Sioux City	1,400,000
Total runoff above Sioux City	18,000,000

The Missouri Basin Interagency Committee also obtained and compiled authoritative estimates of water requirements for municipal water supply and stream sanitation, irrigation, and related depletions, agricultural program uses, navigation, fish and wildlife, and recreation. After thorough analysis, the committee concluded that the regulated water supply of the Missouri River is adequate to provide water for irrigation and other agricultural purposes as planned above Sioux City, supply the requirements for downstream water supply and sanitation purposes, provide sufficient water for satisfactory navigation from Sioux City, Iowa, to the mouth, and permit the generation of substantial quantities of electrical energy. For further details concerning the water adequacy studies, reference is made to Report on Adequacy of Flows in the Missouri River, Missouri Basin Interagency Committee, April 1951.

19. Since completion of the water adequacy report, there have been some moderate changes in estimates of water requirements. Irrigation depletions are now estimated to develop less rapidly and to a somewhat lower ultimate level than anticipated previously. Requirements for stream sanitation and for navigation currently are somewhat greater, temporarily, than estimated in the water-adequacy study, and will continue to be greater until completion of construction of the channel project and sewage-treatment works. Thereafter, it appears, requirements will be about as anticipated in that report. The report's conclusion that the water supply is adequate to meet requirements is still sound.

20. In all of the basic long-range operation planning studies in the years since 1943 certain general overall priorities were observed. Flood-control operation, of course, is not a use of water and requires only that adequate storage space will be available whenever it might be needed. This requirement has been observed. During flood periods on the lower river, the releases from the Fort Randall and Gavins Point Reservoirs may be reduced temporarily, but all of the long-range planning and flood control operation studies have been predicated on maintenance of full system firm power generation through compensatory higher firm power generation at the upstream plants of the system during flood periods. In regulating water for all the actual water uses, provision is first made for the requirements for beneficial consumptive uses, present or future, as provided in the O'Mahoney-Millikin amendment. Downstream water requirements for domestic and municipal water supply and stream sanitation are also provided for, in accordance with the specific policy resolution unanimously adopted by the Missouri Basin Interagency Committee at its 38th meeting, on March 23, 1950. The water remaining after the requirements have been fully met is then regulated so that the outflow from Fort Randall and Gavins Point Dams adequately supplies the seasonal requirements of navigation. The entire reservoir system is then regulated internally and minor adjustments are made in the outflow from the system to provide for the generation of the maximum amount of power consistent with the previously cited uses, in accordance with the specific provisions of Senate Document No. 247 referred to above. Other functions, such as recreation and fish and wildlife, are also a definite factor in the operation planning, but are necessarily lower in priority.

21. The main-stem reservoirs have been designed with sufficient capacities and flexibilities to provide excellent service to all of the functions. Early in the planning phase, it was decided and agreed that the major storage reservoirs would each be divided into three major storage zones, as follows:

A bottom inactive storage zone to provide assured minimum heads for power generation and irrigation diversion, and an assured minimum pool for recreation, fish and wildlife, and sediment. Once filled initially, the bottom zone in each reservoir is to remain permanently filled. All facilities have been planned and designed accordingly—for example, the powerplant equipment is designed and guaranteed to operate satisfactorily with the reservoir drawn down to the level of the bottom inactive storage zone.

A top zone for flood control and annual regulation, for all the conservation uses of water in normal and wet years when the reservoirs are completely filled to the normal operating levels, with a top segment reserved exclusively for flood-control use. Adequate storage for flood control is provided in this zone; and operation of storage in this zone will be governed by the requirement that all of it be available for flood control at the beginning of each year's flood season.

An intermediate multiple-purpose conservation storage zone providing a reserve of joint-use storage for use during long dry periods for irrigation, water supply and stream sanitation, navigation, power generation, and other beneficial conservation uses. (At the present time, in 1957, the Fort Peck and Garrison Reservoirs are operating in the lower half of their intermediate multiple-purpose conservation storage zones, while the Fort Randall and Gavins Point Reservoirs are operating in their top zones for flood control and annual regulation. Temporarily, until the Oahe Dam is closed in 1958, the bottom of the top zone in the Fort Randall Reservoir is at elevation 1,340 mean sea level. After Oahe Dam is closed, this so-called base of flood control in the Fort Randall Reservoir will be raised to elevation 1,350 mean sea level.)

22. The long-range operational plans for the main-stem reservoir system have all contemplated generally that, during years of normal runoff, the releases from the Fort Randall and Gavins Point Reservoirs at the lower end of the system will be in the range of 25,000 to 35,000 cubic feet per second from mid-March to mid-November to provide for water supply, pollution abatement, and a 9-foot channel for navigation; and that, during the remainder of the year, these releases will ordinarily range from 10,000 to 15,000 cubic feet per second to satisfy the needs of water supply, pollution abatement, and winter power generation. The upper limitation on flows during the nonnavigation season of 15,000 cubic feet per second had been established to minimize the increased hazard from ice jams which would result from higher winter flows. A lower limit of 5,000 cubic feet per second may be reached during drought periods and will provide the minimum service required for water supply and pollution abatement.

23. Although low flows, in the 5,000 cubic feet per second range, from Fort Randall and Gavins Point Reservoirs during the nonnavigation season, would limit the winter-energy generation at these two projects, their peaking capability would still be substantial. Furthermore, because of the flexibility offered by the tremendous storage potential in the reservoir system, the releases from the upper reservoirs could be kept at higher levels—up to 15,000 cubic feet per second—through the winter, so that the peaking capability and winter energy production of the total system can be kept at reasonably high levels. The higher winter releases from the upper reservoirs are recaptured in the lower reservoirs, with the excess volume of water above wintertime requirements downstream saved for use the following spring and summer.

24. Thus, the system has been planned and designed so that there will be a reasonably high degree of compatibility between power and navigation in the use of water, and no substantial reason for any serious conflict.

25. These concepts of functional relationships and priorities, which were arrived at and agreed upon in the earlier basic long-range operation studies for the Missouri River main-stem reservoirs, are now being carried over into actual operations.

PROCEDURES USED IN ACTUAL OPERATIONS

26. The Fort Peck Reservoir was brought into operation in 1938, and operated for several years by the Corps of Engineers primarily as a navigation storage reservoir. Power generation was started with completion of the first power unit in July 1943, at which time the Bureau of Reclamation also became interested in operations because of that agency's designation as power marketing agency. Flood control became an important consideration in 1942 and subsequent flood years. This operation pattern, with navigation, flood control and incidental power the main operational considerations, and the Corps of Engineers and Bureau of Reclamation the principally interested agencies, continued until 1953.

27. Since 1953, when the Fort Randall Reservoir first came into operation, until the present with Garrison and Gavins Point added to the system, the main-stem operating base has broadened progressively to include service to all of the multiple-purpose functions in a manner consistent with the basic long-range planning studies previously referred to.

28. Also, in this period, a transition has been completed from operation by a single Federal agency to operation under the guidance of a group of Federal agency and State representatives. Specific plans for operation of the Missouri River main-stem reservoirs are being prepared each year by the reservoir control center in Omaha under the general guidance of the Coordinating Committee on Missouri River Main Stem Reservoir Operations, and then specifically agreed upon by that committee in advance of actual operations. This committee is composed of Governor-designated representatives (generally State water engineers) from each of the 7 main-stem States, and the official representatives of each of the 7 Federal agencies having authorities and responsibilities directly related to main-stem operations. The committee has agreed in advance on all main-stem operations since the Fort Randall Reservoir was first teamed up with the Fort Peck Reservoir in 1953. The advance plans have also been presented to and considered by the Missouri Basin Interagency Committee in advance of actual operations. Actual reservoir operations have been scheduled by the reservoir control center in strict accordance with the plans which have been previously agreed upon.

29. Currently, operations are being scheduled in accordance with the provisions of the annual operating plan for 1956-57, which was agreed upon by the coordinating committee in meetings on August 21 and November 1, 1956; and reviewed by the Missouri Basin Interagency Committee at its meeting on November 6, 1956. During actual day-to-day operations scheduling, the reservoir control center maintains continuous working contacts with related activities of other agencies, especially with the power marketing and dispatching offices of the United States Bureau of Reclamation, and the river forecast center of the United States Weather Bureau. The completeness of coordination which is maintained through these working contacts is particularly outstanding. Also, the various interests throughout the basin are kept currently informed of actual operations and of new developments which may be pertinent to operations through regular monthly bulletins issued by the reservoir control center, and special interim contacts as occasions arise.

30. These coordination arrangements and procedures have been given a severe test during the past 3 years. During this period of initial filling of the new

reservoirs, because of the seriously subnormal runoff, some curtailment of water and power services below the levels that could have been maintained with a normal water supply was necessary. This has created a problem and has led to some misunderstandings. Even though it had been explained that reduced service would result if subnormal runoff should occur, it had been anticipated generally by many that reservoir performance and power generation during this period most probably would correspond to that which could be attained under conditions of normal water supply. With the subnormal runoff actually experienced, such an anticipated level of performance obviously could not be attained. All necessary curtailment of service, however, has been carefully coordinated with Federal and State officials throughout the basin. During this period of rapidly expanding facilities, it has been necessary to exercise great care to assure, on the one hand, that there would not be overcommitments; yet to avoid, on the other hand, because of unreasonable conservatism, any unnecessary delays in progressively expanding service from the reservoirs as the reasonably assured capabilities of the reservoirs have permitted. It has been necessary, therefore, that operations be kept flexible and that they be adjusted equitably each year after careful weighing of both the current year-to-year water supply and requirements and the longer range implications of the operations plans. By this means, good service, equitably balanced, has been provided during this trying initial period through a program of operations that has been kept fully consistent with all the earlier long-range planning studies, criteria, and objectives.

SUMMARY OF ACTUAL OPERATIONS

31. The actual year-to-year sequence of water supply on the Missouri River has a great influence on the rate of initial filling of new reservoirs. This has been of important temporary significance twice on the Missouri River. The water supply in 1938, 1939, 1940, and 1941, when Fort Peck was being brought into initial operation, was seriously subnormal, delaying initial filling of that reservoir to normal levels. Then, again, following 12 years of normal levels, the water supply dipped to seriously subnormal levels beginning in the summer of 1954, and averaged only 80 percent of normal through 1956, right during the period when the new Fort Randall, Garrison and Gavins Point Reservoirs were ready for their initial filling.

32. The Fort Peck Reservoir was filled rapidly to normal operating levels in 1942–44, with a return to normal and wet weather after the preceding drought. The reservoir remained in the normal operating range thereafter throughout 1953, being operated during this period to supply water for 8-month navigation seasons on the lower river, as well as for flood control and rapidly increasing power generation as new power units were completed.

33. It was very fortunate that the Fort Peck Reservoir was essentially full when unfavorable weather and water supply conditions returned in 1954 at the same time the new reservoirs were completed and ready for their initial filling. Drawdown of the Fort Peck Reservoir, to augment the deficient natural water supply, enabled filling of the dead storage pools at the new downstream reservoirs so that it was possible to bring their new power units on the line as construction was completed and, at the same time, maintain suitable discharges on the lower Missouri River for water supply, stream sanitation, and navigation.

34. The distribution of storage in the main-stem reservoir system during the entire period that the reservoirs have been in operation is shown in the following tabulation:

Gross storage contents

[In million acre-feet]

Year (Apr. 30)	Fort Peck	Garrison	Fort Randall	Gavins Point	System total	Year (Apr. 30)	Fort Peck	Garrison	Fort Randall	Gavins Point	System total
1938	0.3				0.3	1948	14.4				14.4
1939	.5				.5	1949	13.9				13.9
1940	1.1				1.1	1950	13.2				13.2
1941	1.4				1.4	1951	14.0				14.0
1942	3.8				3.8	1952	14.2				14.2
1943	8.6				8.6	1953	13.2		0.1		13.3
1944	11.1				11.1	1954	13.0	0.8	1.4		15.2
1945	12.1				12.1	1955	10.2	3.5	2.6		16.3
1946	13.9				13.9	1956	5.8	6.2	3.1	0.1	15.2
1947	15.8				15.8	1957	6.4	6.0	3.5	.4	16.3

It is particularly pertinent that, in spite of the deficiency of water supply available, there has been no loss—and, in fact, a moderate gain—in total system storage during the last 4 years while service from the reservoirs has been expanding rapidly.

35. Some curtailment of water service below the desirable levels that could have been realized with normal inflow in this period was inevitable. The navigation seasons, for example, had to be curtailed 1 month or more each year in 1954, 1955, and 1956. The 1957 season will be curtailed at least 6 weeks. Fort Peck Reservoir alone, if operated in the earlier manner, would have maintained navigation with no greater curtailment. Power-generation rates also were considerably less than would have been possible with normal weather, although operations were deliberately patterned so that all urgent firm power requirements have been met, and total main-stem generation was increased substantially. All water service and power generation at the main-stem reservoirs, although less than would have been possible with normal water supply during this period, has equaled or exceeded amounts which the corps had indicated to be assured in the event of an adverse water supply, except in a few instances of unavoidable delays in completion of construction of power generating and transmission facilities. Thus, actual functional operations of the reservoirs have provided all the services to all functions that had been positively assured, and much greater service to all functions, except navigation, than would have been available without the three new reservoirs teamed up with the Fort Peck Reservoir and brought into initial operation during the last 4 years.

36. Recent studies made for the information of the coordinating committee and the Missouri Basin Interagency Committee indicate that, with a return to normal weather and water supply conditions, the main-stem reservoirs can be filled to normal operating levels quite rapidly. All basic needs for all purposes at the present time can be fulfilled with annual water usage of only some 18 to 20 million acre-feet a year; as compared to the normal year water supply of about 25 million acre-feet a year from the basin above Sioux City. This leaves a substantial surplus for filling of the reservoirs in even a normal year. Thus the Fort Peck and Garrison Reservoirs could be filled to normal operating levels by late 1959 if the water supply during 1957 to 1959 averages only as good as normal. (In future decades, as irrigation grows to currently forecasted levels, the surplus of the normal-year water supply over basic needs for all purposes will be progressively depleted, and future refilling of the main stem reservoirs will be accomplished during wetter-than-normal years.) In adverse years, the water use can be pared down to 16.5 million acre-feet, with tolerable curtailments in water service, such as is actually being done in 1957. The filling of the reservoirs to normal levels at the earliest date compatible with water service and power generation requirements on the river is a major objective of current reservoir operations on the Missouri River. This initial filling, and the completion and filling of the Oahe and Big Bend projects, will enable the main stem reservoir system to serve all functions excellently, even during periods of low runoff.

37. Although the actual operations of the main-stem reservoirs have been complicated seriously by the adverse weather and water supply conditions of the past 3 years, the record of actual accomplishments, despite these adversities, is outstanding.

38. Flood control on the Missouri River was advanced tremendously when the Fort Randall and Garrison Reservoirs were placed in operation. A great flood like that in 1952, if it should occur today, would be bottled up without harm to the lower valley. The flood peak at Omaha, Nebr., would be reduced to a stage of 16.5 feet, 2.5 feet below flood stage, instead of the 30.2 feet actually reached in April 1952.

39. Power generation has been nearly quadrupled in the last 4 years, as power units and transmission outlets have been completed and expanded, increasing from 610 million kilowatt-hours in 1952 to 2,280 million kilowatt-hours from the interconnected main-stem system in 1956. Firm power generation during this period increased almost fivefold, from 292 million kilowatt-hours in 1952 to 1,379 million kilowatt-hours in 1956, with a substantial portion of the increase reflecting the more effecient system operation possible since the backbone main-stem transmission line was placed in operation in June 1956. Water use for power generation has been increasing progressively as new power units at the new projects are being completed and brought into operation. It is anticipated that well over 90 percent of the total system releases in 1957 will be discharged through the power plants. With the use and reuse of the water as it is brought down through the chain of powerplants, the total volume of water to be used for power generation in 1957 will be several times the total

volume of water discharged past Sioux City to serve the lower river uses. Power generation in 1957 is estimated to reach around 3 billion kilowatt-hours, some 30 percent higher than in 1956.

40. Present irrigation usage on the tributaries and the Missouri River has been fully allowed for in main-stem reservoir operations. The Garrison Reservoir has already been filled above the minimum level required for large-scale diversion into northern and eastern North Dakota, and the water bank is being filled well in advance to provide for future expansions of irrigation in the Missouri Basin.

41. Downstream flow regulation on the Missouri River has presented an outstanding illustration of the benefits of reservoir regulating during the severe lower basin drought of the last 3 years. Year-around flows have been firmed up to meet all basic requirements for municipal and industrial water supply and stream sanitation. The three new reservoirs on the main stem below the Fort Peck Reservoir have been particularly valuable in maintaining adequate flows for these purposes during the nonnavigation season. The higher summer-season requirements for these purposes have been completely supplied by the releases made for navigation. Navigation has been furnished evenly regulated flows, although for somewhat curtailed seasons. The total navigation water service has been much better than would have been supplied naturally without any reservoirs to sustain flows during the summer and autumn months. However, total deliveries below Sioux City of water useful to navigation and the aggregate length of the navigation seasons during the past 3 years have been practically the same as those which could have been provided by the Fort Peck Reservoir alone, operating primarily for navigation in the manner in which it had been operated prior to 1954.

42. The flow-regulation benefits realized on the Missouri River have extended on downstream to the Mississippi River, although there have not been any additional releases from the reservoirs specifically for Mississippi River purposes. The sustained flow from the Missouri River has been of tremendous value for navigation, water supply, and industry along the entire length of the Mississippi River from St. Louis to New Orleans.

43. While all the foregoing benefits were being achieved by operations for the primary functions of the reservoirs, new recreation and fish and wildlife values have been created locally, at the sites of the new projects, which are of very great value to the local people. Obviously, with the reservoirs not entirely full to normal levels, conditions have not been the most favorable, particularly at the upper ends of the reservoirs. Nevertheless, the very real recreational opportunities which actually exist at the reservoirs are attested to by the visitor attendance records of approximately 100,000 persons at the Fort Peck Reservoir during each of the last 6 years, attendance rising from 100,000 persons in 1954 to 145,000 persons in 1956 at the Garrison Reservoir, attendance of from 600,000 to 750,000 persons at the Fort Randall Reservoir during each of the last 3 years, and attendance rising from 81,000 persons in 1954 to 551,000 persons in 1956 at the Gavins Point Reservoir. Special operations for recreational and fish and wildlife purposes have been accomplished in compatibility with operations for primary purposes, and have contributed materially to improved local usage of these great lakes of the Missouri River.

CONCLUSION

44. Unfavorable weather and water supply conditions the past 3 years have necessitated some curtailment of services from the Missouri River main-stem reservoirs below levels that would have been possible with normal water supply. Nevertheless, the reservoirs have been operated, completely within all legislative authorizations and directives, to provide rapidly expanding services to all new functions while maintaining navigation service approximately as was previously being accomplished with the Fort Peck Reservoir alone. Such curtailments below optimum service levels as have been necessary have been made equitably. Operation of the reservoir system has been carefully coordinated with the basin States and interested Federal agencies through the coordinating committee and the reservoir control center.

45. The recent adversity is only temporary, and with a return to normal weather and with completion of construction on the main-stem system, beneficial services severalfold greater than those already being realized can and will be furnished the whole length of the Missouri River.

[Enclosure No. 2]

MARCH 12, 1954

COST ALLOCATION

AGREEMENT AMONG DEPARTMENT OF THE INTERIOR, DEPARTMENT OF THE ARMY, AND FEDERAL POWER COMMISSION

. Costs of a multiple-purpose project shall be allocated among the purposes served in such a manner that each purpose will share equitably in the savings resulting from combining the purposes in a multiple-purpose development.

Acceptable methods (see attachment for brief descriptions)

(1) *Separable costs-remaining benefits method.*—This method is considered preferable for general application.

(2) *Alternative justifiable expenditure method.*—This method differs from (1) only in employing specific costs of the various functions rather than their separable costs. It is acceptable where the necessary basic data to determine separable costs are not available and the time and expense required to obtain the data are not warranted.

(3) *Use of facilities method.*—This method is acceptable where the use of facilities is clearly determinable on a comparable basis and where use of this method would be consistent with the basis of project formulation and authorization.

Minimum allocation

Each purpose shall be allocated, in every case, at least its separable cost (the cost traceable to its inclusion in a multiple-purpose project). Limitations of basic data may occasionally require the use of specific cost (the cost of features identified solely with a single purpose) and other available data as constituting the best available basis for approximating separable costs.

Legislative history

The legislative history of authorized projects shall be considered in the allocation of cost. The authorizing act, committee reports, project justification documents, and similar sources disclose the nature of the proposal submitted to the Congress and of congressional action thereupon.

Consideration of economic costs

In applying any one of the above allocation methods, taxes in an amount equal to those which would be foregone as a result of Federal development of the power rather than the most likely alternative development shall be included as an economic cost when distributing costs among the project purposes for analysis of economic justification, but shall be subtracted from the costs thus distributed to power in order to obtain the allocation of project costs to power.

Value of power

The value of power produced means the estimated market value which would be obtainable if it were to be sold on an open competitive basis, without restriction as to use or resale. The value of power shall be determined as the lower of two figures:

(1) The estimated actual cost of equivalent power from the most likely alternative source that would be expected to develop in the absence of the project, to meet the same power needs, with appropriate adjustment for transmission costs and losses and other technical factors.

(2) Estimated value of power to users. (Applicable where costs of alternative power would be prohibitive either for part or all of the power produced.)

The value of power, determined as indicated above, shall be used for computations of economic benefits in project justification and for the allocation of project costs. It will not be used to establish the level of power revenues, which are based on the amortization of project costs (Federal power investment) over a reasonable period of years.

Project feasibility

Criteria of project feasibility shall be such that, insofar as can be determined in advance:

(1) Projects will be considered economically feasible when the value of power (as defined above) will at least equal the project costs allocated to power, plus the amount of taxes which would be foregone as a result of Federal development of the power rather than the most likely alternative development.

(2) Projects will be financially feasible, i. e., they will have potential net revenues from power sales sufficient to reimburse the Federal Government for the Federal investment in power.

[Attachment]

BRIEF DESCRIPTION OF METHODS OF COST ALLOCATION

The separable costs-remaining benefits method has the following steps:

(1) The benefits of each purpose are estimated.

(2) The alternate costs of single-purpose projects to obtain the same benefits are estimated.

(3) The separable cost of each purpose is estimated.

(4) The separable cost of each purpose in the multiple-purpose project is deducted from the lesser of each purpose's benefits or alternate cost. The lesser figure is used since alternate cost is used in this method only if it represents a justifiable expenditure, that is, if it does not exceed the benefits.

(5) From total cost of project deduct all separable costs to determine residual costs.

(6) Residual costs, designated as joint costs in this method, are distributed in direct proportion to the remainders found in step 4.

(7) To determine the cost allocated to each purpose, add the separable and distributed costs for each purpose and, in the case of power, subtract from that sum the amount of taxes foregone which was used in computing power costs under steps 2 and 3 above.

The alternative justifiable expenditure method has the following steps:

(1) The benefits of each purpose are estimated.

(2) The alternate costs of single-purpose projects to obtain the same benefits are estimated.

(3) The specific cost of each purpose is determined.

(4) The specific cost of each purpose in the multiple-purpose project is deducted from the lesser of that purpose's benefits or alternate cost. The lesser figure is used since alternate cost is used in this method only if it represents a justifiable expenditure, that is, if it does not exceed the benefits.

(5) From total cost of project deduct all specific costs to determine joint costs.

(6) Joint costs of the multiple-purpose project are distributed among purposes in direct proportion to the remainders found in step 4.

(7) Allocation of project cost is determined in the same manner as under the separable costs-remaining benefits method.

The use of facilities method has the following steps:

(1) The use which is made by each purpose of joint project facilities is estimated on some basis which is comparable for the purposes concerned, using such measures of use as those of flow, reservoir capacity, energy consumption, and others as may be applicable.

(2) The separable cost of each purpose is estimated. (In cases of minor importance specific rather than separable costs may be used.)

(3) From total cost of project deduct all separable costs to determine joint (residual) costs.

(4) Joint costs of the multiple-purpose project are distributed among purposes in proportion to the comparable measures of use of the joint facilities estimated in (1).

(5) To determine the cost allocated to each purpose, add the separable and distributed costs for each purpose and, in the case of power, subtract from that sum the amount of taxes foregone which was used in computing power cost under (2) above.

[Enclosure No. 3]

JUNE 7, 1957

EXPLANATION OF COST ALLOCATIONS

1. *Introduction.*—The main-stem Missouri Reservoir system is a series of six reservoirs which are to be operated as a coordinated system for flood control, irrigation, navigation, and hydroelectric-power production, and other purposes. To determine an equitable division of costs to each function, cost-allocation studies are required. Several methods are available to accomplish this, and each has certain advantages and disadvantages. In 1950 the Subcommittee on Benefits and Costs of the Federal Interagency River Basin Committee proposed a method entitled "Separable Costs-Remaining Benefits." In 1954 the Federal agencies concerned with cost allocations for water-resource development projects agreed upon this method for future use.

2. Initial allocation studies by the Corps of Engineers were undertaken for the Missouri River mainstem system in 1950, utilizing the use-of-facilities method; in 1952 the allocation was selected from the results of several methods; and after 1952 all allocations have been made by the separable costs-remaining benefits method. Subsequent allocations have been made to account for changes in total costs and other physical factors such as increased power installations. A summary of the results of each of these studies was furnished to the joint committee in April 1957, in response to its request.

3. *Tabulation of allocations.*—The following table presents a summary of the three principal allocations under discussion in the testimony before the committee and concerning which requests were made for explanations of the changes:

	Use of facilities method, January 1950	Selection from several methods, October 1952	Separable costs-remaining benefits method, January 1957
Flood control	$107,800,000	$142,631,700	$155,100,000
Navigation	113,880,000	136,100,000	93,800,000
Power	492,749,000	657,916,000	728,400,000
Irrigation	170,820,000	173,300,000	162,900,000
Recreation	5,890,000	3,050,000	3,100,000
Total	891,139,000	1,112,997,700	1,143,300,000

4. It will be noted that between the 1950 and 1957 allocations the following changes have occurred:

Total costs increased $252 million from $891 million to $1,143 million.
Power allocation increased $235 million from $493 million to $728 million.
Flood control allocation increased $47 million from $108 million to $155 million.
Irrigation allocation deceased $8 million from $171 million to $163 million.
Navigation allocation decreased $20 million from $114 million to $94 million.
Recreation allocation decreased $3 million from $6 million to $3 million.
The method-of-cost allocation has changed.

To demonstrate the changes, the derivation of each of the columns will be explained.

5. *January 1950 allocation.*—This allocation was made using one variant of the use-of-facilities method. Under this method, the specific costs for each function are first determined. "Specific" costs are costs of facilities which are solely for a particular function, such as the powerhouse, turbines, generators, penstocks, surge tanks, switchyard, and other features solely for power production. The costs remaining after all specific costs are subtracted from the total project costs are termed joint costs. These joint costs are then allocated to each function on a basis proportional to the use made of facilities. The use made by each function was measured in terms of acre-feet of storage useful to the function under a long-term operation study for conditions of ultimate development. (In later studies the period of development for irrigation was taken into account.) Only specific costs were assigned to recreation. It will be noted that in this method, costs were allocated to functions on the basis of physical operation of the system with no direct relationship to the benefits of a function.

6. *October 1952 allocation.*—The results of this study are included on page 92 of the Missouri Basin Survey Commission report, with the exception of $500,000 for recreation at the Big Bend project which was omitted from that report. It was the first study made which included consideration of the separable costs' remaining benefits method as suggested by the subcommittee of the Federal Interagency River Basin Committee on Benefits and Costs, although other methods were utilized too. For this allocation, 16 separate allocation studies were made in exploration of the field of available methods, consisting of several examples of each of the following methods:

Separable costs-remaining benefits
Alternate justifiable expenditure
Benefits
Use of facilities
Incremental to power

It was considered in this analysis that each method had certain advantages and disadvantages and that the results of the most applicable methods would be a valuable guide to judgment as to the equitable distribution of costs between functions. The allocation selected by judgment was based primarily on the separable cost-remaining benefits; the use of facilities method; and the incremental to power method.

7. In the companion allocation shown on page 92 of the report of the Missouri Basin Survey Commission ascribed to the Bureau of Reclamation, the amount assigned to power was only the costs of specific facilities for power under July 1951 prices. Thus, navigation and flood control were charged not only with the specific costs for these functions but also all of the joint costs of the system (also, the specific power costs as estimated for 1951 price levels were subtracted from total project costs estimated for 1952 price levels, so that the increase in specific power costs due to price rise between 1951 and 1952 was also charged to navigation and flood control) by taking the difference between the total cost of the project and the specific cost to power.

8. *January 1957 allocation.*—Subsequent to the interagency agreement of March 1954, the separable cost-remaining benefit method has been used for all corps allocations. The separable cost for each function is the difference between cost of the total multiple-purpose project and the cost of a project providing the same service to all of the other functions. In other words, the separable cost of a function is the cost of adding that function to a proposed project for serving other functions. The separable costs are assigned directly to the purpose for which they are incurred. The remaining part of the total project costs after deducting the sum of the separable costs is called the joint costs and are allocated to the purposes served by the remaining-benefits method. To apply the remaining-benefits method, it is first necessary to determine what benefits will accrue to each purpose. However, if there is an alternative method of accomplishing the same purpose which would cost less than the benefits accruing to that purpose, the smaller figure is used. From the smaller figure thus obtained, the separable cost for that purpose is subtracted to obtain the remaining benefits. Joint costs are then distributed to each purpose in proportion to the remaining benefits for each purpose. The total costs allocated to a purpose are the sum of the separable costs plus the allocated portion of the joint costs.

9. *Overall-cost comparison.*—Of the overall increase in cost of the projects from $891 million to $1,143 million, about $100 million is due to increased electric-generating capacity, and about $150 million to the increase in price levels and to design changes which both increased and decreased prices. These are not precise determinations due to the nature of some of the changes. For example, on the Big Bend project costs were kept reasonably up to date by applying ENR price index changes through 1954. In 1954 a preliminary design study indicated that a change in location of the project, with increased power head and greater installed capacity could be built at approximately the same cost as the indexed cost of the smaller project. Incidentally the ENR construction costs index has changed from 477 average in 1949 to 693 average in 1956, or approximately a 45-percent increase.

10. *Comparison of allocations.*—In comparing the allocations, cognizance must be taken of the difference in methods used. The 1950 allocation was based on the service rendered to each function as shown by a long-term operation study without consideration of the economic worth of such services. The 1957 allocation, based on the separable costs-remaining benefits method assigns costs to functions in relation to their economic worth (benefits) without direct regard to the relative service provided by the projects. The 1952 allocation was derived

by judgment, from consideration of results of these two methods, and also with some consideration to the lesser status of power as a primary Federal responsibility.

11. *Power changes.*—The individual function changes reflect the above factors. Thus, power allocations changed from $493 million in 1950 to $658 million in 1952 to $728 million in 1957 primarily because of the increasing costs of specific facilities solely for power. One of the major reasons for the change in specific costs was the increase in power installations; including an increase of 80,000 kilowatts at Fort Peck, 245,000 kilowatts at Oahe, 97,000 kilowatts at Big Bend, and 19,000 kilowatts at Gavins Point—a total of 441,000 killowatts, or an overall increase of nearly one-third. (The power installations indicated on the cost-allocation summaries previously furnished the committee for January 1950 and June 1950 included 425,000 kilowatts at Oahe, 100,000 kilowatts at Gavins Point, and 1,450,000 kilowatts for the system should have been: Oahe, 350,000 kilowatts; Gavins Point, 81,000 kilowatts; and system, 1,356,000 kilowatts.) Thus specific costs changed from $275 million in 1950 or 31 percent of total system costs, to $371 million in 1952, or 33 percent of total system cost, to $483 million in 1957, or 42 percent of total system cost. The remaining joint costs allocated to power changed from 24.4 percent of total system costs in 1950 to 25.7 percent in 1952 to 21.4 percent of total system costs in 1957. Similarly, the separable costs to power (cost of adding power to the project) increased from $436 million in 1952 or 39 percent of total system costs, to $577 million in 1957 or 51 percent of total system costs. It will be noted that the allocation of joint costs to power between 1950 and 1957 increased less than 25 percent from $217,775,000 to $245,007,000, although during this same period the ENR index of price change indicates that construction costs generally increased over 45 percent.

12. *Navigation, flood control, and irrigation.*—The change in costs allocated to navigation from $114 million in 1950 to $136 million in 1952 resulted in large measure from increased system costs; from use of an average period, with gradually increasing irrigation service, rather than ultimate conditions; and from some recognition of the incremental allocation method for power. The change from $136 million in 1952 to $94 million in 1957 resulted primarily from changing to the separable costs-remaining benefits allocation method. Also, in general, evaluated benefits to other functions increased during this period while navigation benefits have remained constant, resulting in a reduction in the portion of joint costs assigned to navigation.

13. Flood-control allocations changed from $108 million in 1950 to $143 million in 1952 because of the increased cost of the system, and because of consideration of the incremental allocation to power. The change to $155 million in 1957 results from the method used and the increased estimates of costs of a single-purpose alternative project which was used to limit the flood-control benefits in the study.

14. There was very little change in irrigation costs from the $171 million in 1950 to the $173 million in 1952 due to the offsetting effects of the increased system costs, which would have raised the allocation, and the fact that rate of development was considered in 1952 rather than basing it on ultimate development as in the 1950 study. The change to $163 million in 1957 results from the use of the separable costs-remaining benefits method. During this period evaluated benefits to flood control, irrigation and power all increased, but irrigation benefits were limited by the cost of an alternative single purpose project, so that irrigation's portion was reduced.

15. *General observations.*—It is pertinent to recognize that the service which navigation will receive from the system under full development conditions will be less in quantity, although of somewhat better quality of regulation, than would have been furnished by the Fort Peck Reservoir alone which was built primarily for navigation.

16. It should also be noted that under the 1957 allocation "Navigation" and "Flood control" are allocated about 37 percent of the joint costs of facilities useful to all purposes, while "Power," although its benefits exceed the combined benefits for all other functions, is allocated about the same, 39 percent of the joint costs.

[Enclosure No. 4]

June 7, 1957

FLOW RELEASES FOR NAVIGATION

1. *Description and status of project.*—The Missouri River bank stabilization and navigation project is one which concentrates the low flows into a single channel, shapes the channel into a series of smoothly curved bends, and then stabilizes the new banks along the desired alinement. It is of the type known as "open river regulation," which means that there are no dams to form slackwater pools. In this it is similar to the 1,170 miles of the Mississippi River from St. Louis to the gulf. At the close of calendar year 1956, the status of completion of the project was: Kansas City to the mouth, 84 percent; Omaha to Kansas City, 80 percent; and Sioux City to Omaha, 40 percent.

2. *Design flow requirements.*—The original design for the 9-foot project was based on flows of 30,000 cubic feet per second or more at Sioux City for a full 8-month navigation season for 90 percent of the time, but with flows as low as 20,000 cubic feet per second for the remaining 10 percent of the time unless compensated for by a shortening of the navigation season.

3. Experience and data collected during the construction history of the project indicate that flows of 30,000 cubic feet per second at Sioux City and 32,500 cubic feet per second at Kansas City will permit 9-foot navigation with nominal dredging when the project is completed. The statement has been made that flows of 25,000 cubic feet per second at Sioux City and 27,500 cubic feet per second at Kansas City would permit 9-foot navigation without excessive dredging. However, the amount of dredging which might be required with lesser flows cannot be fully determined until the project is complete.

4. Navigation is limited to the ice-free season which is about 8 months at Sioux City and 9 months at Kansas City and below. Flows necessary to provide a 9-foot channel for the full-length season are desirable; however, a shorter season is preferable to a decrease in flows.

5. *Current flow requirements for successful navigation.*—Actual operating experience the last 3 years has demonstrated that for successful navigation on the uncompleted project flows of 25,000 to 28,000 cubic feet per second at Omaha, 32,000 cubic feet per second at Nebraska City, and 35,000 cubic feet per second at Kansas City are about the practicable minima until project completion. Such flows are required to offset the adverse channel conditions resulting from rapid peaking of uncontrolled tributary inflows, the influence of fluctuating stages of the Mississippi River, and the effects of ice. The rapid peaking of tributary inflows causes the shifting of the channel on the crossings which have not been fully stabilized or defined. The fluctuating of the Mississippi River affects the lower reaches of the Missouri in much the same manner as the uncontrolled tributary inflows. The intermittent formation and breaking of ice blocks cause the formation of auxiliary channels thereby reducing the flow available for the designed channel.

6. Under present conditions, flows less than those listed in the preceding paragraph would require a severe reduction in size of tows as well as draft and very probably would cause some of the newer boats, designed especially for Missouri River operations, to be unable to operate due to their designed drafts and large horsepower. In view of this, when it has been necessary to reduce total water usage, it has been preferable to shorten the season rather than to try to operate with lower flow rates.

7. Flows of at least 20,000 cubic feet per second at Sioux City are required during at least 6 months of the ice-free season, even without commercial navigation. These flows are required to permit construction to proceed on the bank-stabilization project above Sioux City and on the stabilization and navigation project below Sioux City. Even with such reduced flows, construction operations would be hindered by the difficulties of moving and operating floating plant at full capacity, and consequently construction costs would be moderately increased.

8. *Benefits of releases for navigation in calendar years 1954, 1955, and 1956.*—The general release pattern for the past 3 years has been to maintain about 28,000 cubic feet per second at Omaha, 32,000 cubic feet per second at Nebraska City, and 35,000 cubic feet per second at Kansas City for periods of about 7 months in 1954, 6½ months in 1955, and 7 months in 1956. Releases of the same general magnitude and duration could have been sustained by the operation of the Fort Peck Reservoir alone.

9. The estimated savings to shippers resulting from the use of the navigation project during these years were previously reported to the committee as follows:

	Calendar year		
	1954	1955	1956
Missouri River:			
Commercial freight	$908,000	$1,330,000	$954,000
Sand and gravel	84,362	89,111	109,776
Waterway improvement materials	1,062,775	976,272	1,244,877
Mississippi River:			
Commercial shippers		1,777,000	1,753,000
Savings in channel work		415,000	631,000
Total	2,055,137	4,587,383	[1] 4,692,653

[1] Corrected figure.

10. The releases that would have been made in an operation primarily for power in 1954–1956, without any service for navigation or stabilization construction, would have varied around an average of 15,000 cubic feet per second, ordinarily, at Sioux City during the open water periods. Releases of this magnitude would not have permitted through commercial navigation. Sand and gravel movement, being of a short-haul nature, could possibly have adjusted to these discharges by taking advantage of local pool areas. The movement of waterway-improvement materials could have continued to some extent but probably at no savings over land-haul methods due to restricted movement of floating plant and a reduction in drafts. Therefore, all of the savings listed in the preceding paragraph, except for sand and gravel, can be attributed to the additional releases in excess of those for power requirements.

11. The total operation and maintenance costs for the stabilization and navigation project, as furnished previously to the committee, were—

Fiscal year 1954	$7,032,551
Fiscal year 1955	6,371,245
Fiscal year 1956	6,238,480
First half of fiscal year 1957	3,302,600

As stated to the committee, only a portion of these costs, together with a portion of reservoir-operating costs, are allocable to navigation, as listed below:

Navigation operation and maintenance

	Fiscal years			First half, 1957
	1954	1955	1956	
Channel work	$2,452,900	$2,222,300	$2,176,000	$1,151,900
Reservoirs	125,151	139,062	250,011	119,717
Total	2,578,051	2,461,362	2,426,011	1,271,617

12. If navigation had been temporarily suspended for the 1954–56 period, only those operation and maintenance costs used directly for channel dredging, channel marking and reconnaissance, and snagging would have been saved, since those items chargeable to structure maintenance would have continued. These savings would have amounted to the following on a calendar year basis:

Calendar year 1954	$1,160,900
Calendar year 1955	1,337,500
Calendar year 1956	1,234,200
Total	3,732,600

In computing these savings, the fiscal year costs for channel dredging, channel marking and reconnaissance, and snagging were prorated according to the total half-year operation and maintenance costs.

13. The additional revenue from power that could have been generated in 1954, 1955, and 1956 by reservoir operation without any service to navigation or stabilization construction is roughly estimated as $400,000 in 1954, $1,000,000 in 1955, and $2,500,000 in 1956.

14. A comparative analysis of the benefits resulting from the operations for the past 3 years is as follows:

	Calendar years			Total for 3 years
	1954	1955	1956	
Missouri River:				
Commercial freight	$908,000	$1,330,000	$954,000	$3,192,000
Waterway improvement materials	1,062,775	976,272	1,244,877	3,283,924
Subtotal	1,970,775	2,306,272	2,198,877	6,475,924
Mississippi River:				
Commercial shippers		1,777,000	1,753,000	3,530,000
Savings in channel work		415,000	631,000	1,046,000
Subtotal	1,970,775	4,498,272	4,582,877	11,051,924
Less savings without operation for navigation:				
Additional power revenue	400,000	1,000,000	2,500,000	3,900,000
Operation and maintenance savings	1,160,900	1,337,500	1,234,200	3,732,600
Subtotal	1,560,900	2,337,500	3,734,200	7,632,600
Net benefits	409,875	2,160,772	848,677	3,419,324

15. Thus it is indicated that the actual operations of the Missouri River mainstem reservoirs the past 3 years have resulted in greater net values than could have been realized by operations primarily for power without any service to navigation. The maintenance of navigation water service during these years of initial traffic growth and development, although not evaluated in the foregoing tabulation, is very important to earliest realization of full navigation benefits on the Missouri River, and further justifies the actual operations.

[Enclosure No. 5]

(June 7, 1957)

SLACK-WATER NAVIGATION, MISSOURI RIVER, SIOUX CITY, IOWA, TO THE MOUTH

1. *Existing Missouri River stabilization and navigation project.*—The existing project for bank stabilization and navigation on the Missouri River from Sioux City, Iowa, to the mouth, a distance of 762 river-miles, provides for securing a stabilized navigable channel 9 feet deep and not less than 300 feet wide by open-river regulation, that is, by means of bank revetment, permeable dikes to contract and stabilize the waterway, cutoffs to eliminate long bends, closing of minor channels, removal of snags, and dredging as required. This work serves the dual functions of stabilizing the banks and shaping the navigation channel. At the close of calendar year 1956, the project was 84 percent complete below Kansas City, Mo.; 80 percent complete between Omaha, Nebr., and Kansas City; and 40 percent complete between Sioux City, Iowa, and Omaha. The estimated total cost of the project is $340,900,000, of which $242,737,000 has been allotted to date. The major portion of the work yet to be accomplished lies in the reach between Sioux City, Iowa, and Omaha, Nebr.

2. The existing project is dependent for its successful operation on release of sufficient water from upstream storage to maintain satisfactory channel depths during the ice-free navigation season of about 8 months. The existing Fort Peck Reservoir in Montana was built for the primary purpose of maintaining adequate navigation flows in the Missouri River in the reach from Sioux City, Iowa, to the mouth. Since closure of other reservoirs on the upper Missouri River in recent years, releases to maintain satisfactory flows for a somewhat shortened navigation season of 6½ to 7 months have been provided by integrated operation of the reservoir system as a whole.

3. Open-river regulation was selected as the appropriate method for improvement of the Missouri River for navigation on the basis of economic conditions which existed and which could be foreseen at the time the improvement was

initiated. Economic justification of the existing project is apparent, for improvement costs have been more that justified by benefits already realized from bank stabilization alone.

4. *Proposed study of improvement of the Missouri River by canalization in lieu of improvement by open-river regulation.*—It has been proposed that consideration be given to replacement of the existing navigation project by a canalization project, that is, a project for improvement of the river from Sioux City, Iowa, to the mouth to permit slack-water navigation by means of a system of locks and dams—a type of improvement which would permit navigation with flows substantially reduced below those now required. It has been suggested also, in connection with consideration of a slack-water-navigation project, that consideration be given to the practicability and feasibility of power generation at the dams between Sioux City and the mouth, which would be required in a project of this nature.

5. *Prior studies of slack-water navigation on the Missouri River.*—Studies, generally of preliminary examination scope, of a project for slack-water navigation on the Missouri River from Yankton, S. Dak., to the mouth, were undertaken by the Corps of Engineers during preparation of the 308 Report on the Missouri River (H. Doc. No. 238, 73d Cong., 2d sess.). Because of the wide, fertile flood plain which would be subject to inundation by the pools formed behind dams of appreciable height, studies were limited to relatively low dams which would confine pools insofar as practicable to within riverbanks. Because of the low heads, power production was not considered. The necessity for relatively frequent passage of large flood flows required consideration of movable dams, and the appreciable percentage of time natural discharges were of a magnitude sufficient to permit open-river navigation required the inclusion of navigable passes. The plan of improvement considered in the 308 Report accordingly included a system of 112 locks and dams with lifts varying from 3 to 14 feet and averaging about 7 feet, each including a 110- by 600-foot lock adjacent to one river bank, a movable navigable dam section of Chanoine wickets, a movable nonnavigable section equipped with roller gates, and a fixed dam section adjacent to the other bank. Design was based on obtaining a minimum navigable depth of 8 to 9 feet. The estimated cost of the locks and dams, not including the cost of river-stabilizing works required to maintain a channel through the pools or to prevent flanking of the dam structures, was $343,255,000 on the basis of price levels in 1932 when the report was prepared. It should be noted that costs now are on the order of 2½ to 3 times higher than they were in 1932.

6. The 112 dams between Yankton, S. Dak., and the mouth developed a total lift of 774 feet. Of this total, 96 dams with an aggregate lift of 694 feet were below Sioux City. In proportion to that part of the total lift which is below Sioux City, the indicated part of the above total cost assignable to the reach from Sioux City to the mouth is about 90 percent.

7. Based upon the studies made at that time, it was concluded that the same benefits to navigation could be obtained by open-river regulation at less cost than by canalization. Accordingly, the 308 report proposed an open-river regulation project supplemented by upstream storage to maintain flows required during the navigation season.

8. *Physical and economic changes since completion of prior studies.*—There have been major physical and economic changes in the Missouri River Basin since completion in 1932 of prior studies of a slack-water navigation project. Major multiple-purpose dams and reservoirs have been constructed on the upper Missouri River and additional major structures are under construction and authorized, with the result that floods originating in the upper basin will be controlled and sediment contribution from the upper basin will be reduced. Although floods can still be generated in the uncontrolled portion of the basin below Gavins Point Dam, the magnitude and severity of floods on the Missouri River between Sioux City and the mouth will be greatly reduced. Tributary reservoirs completed, under construction, and authorized in the lower basin will further reduce the frequency and severity of lower basin floods, and a system of levees authorized and under construction along the Missouri River between Sioux City and the mouth will greatly reduce damages from lower river floods which do occur. The existing stabilization and navigation project has achieved stabilization of riverbanks below Omaha and promises stabilization of the banks between Sioux City and Omaha. The reduction in the flood threat plus stabilization of the riverbanks has encouraged improvement of flood-plain properties and intensified use of flood-plain lands. Water requirements of all kinds have been increased and still greater requirements in the future can be foreseen, so that

water conservation has become of primary importance. Use of electrical power has increased and estimated future power demands are of a magnitude totally unforeseen at the time of earlier studies, with the result that the possibility of incorporation of power production into a slack-water navigation project should not be neglected in future studies. Construction costs, of course, have increased greatly since prior studies, but there have been major advancements in construction methods, tools, and materials which should make possible certain economies in spite of the general price rise.

9. *Scope of future investigation.*—Because of the physical and economic development which has taken place since prior studies were completed, and because of the apparent great magnitude of construction costs involved, further investigation of a slack-water-navigation project on the Missouri River should be initially of preliminary examination scope. Even if so limited, the investigation will be expensive and will require an appreciable time for completion because of the many complex factors which must be considered in developing and evaluating the most appropriate plan of improvement Briefly, the investigation will require the following major studies:

(*a*) Layout and design of structures: Economical power installations are practicable only in connection wtih dams developing a substantial amount of power head. Dams developing sufficient heads for economic power generation on the Missouri River below Sioux City would inundate large areas of fertile bottomlands with resultant high flowage damages. It will be necessary, therefore, to compare costs for the higher dams capable of power development but entailing associated high flowage damages with costs for the lower dams which would have no power production benefits but would have the advantage of much lower flowage damages. It is possible that a combination of the two types may prove practicable—the lower dams to be used where flowage damages would be extremely high and the higher dams to be used where the increase in flowage damages would be moderate and would be warranted in view of returns from power production. Structures must be designed to insure that flood heights are increased by the minimum amount practicable. Consideration should be given to the practicability of longitudinal dikes for lateral confinement of the pools and the practicability of incorporating existing levees therein.

(*b*) Detailed designs: To permit reasonably accurate cost estimates, at least one structure of each size class should be laid out and designed in detail. In addition detailed studies should be made of the dams and appurtenant structures which will affect congested urban areas. Sufficient design should be accomplished on each structure to insure that sample detailed estimates may be properly applied.

(*c*) Stabilization structures: Sufficient studies will be required to determine the extent to which existing stabilization works and those currently planned can be adapted to the requirements of a slack-water-navigation project for maintenance of channels through the pools and for prevention of flanking of structures.

(*d*). Sediment investigations: Extensive studies will be required to determine the probable nature and extent of sediment deposition in the pools and the cost of its removal. The 308 Report studies demonstrated the magnitude of sedimentation in slack-water pools, the high cost of maintenance dredging, and the difficulty of disposal of the enormous quantity of dredged material involved. Although the main-stem dams already constructed have reduced the river's sediment load—by about 50 percent at Omaha, Neb.—the reduction for the most part has been confined to the finer sediments which would be least likely to deposit in the pools of a navigation system. Except for the uppermost pools of the system, little reduction in sediment deposition below the amounts estimated in prior studies can be depended upon. This is particularly true for those pools below the mouth of the Platte River and below the mouth of the Kansas River.

(*e*). Drainage of adjacent lands: Drainage of adjacent lands will constitute a major problem in connection with any system of slack-water pools. Even with low dams and pools confined within the riverbanks, ground water levels may be raised to an extent detrimental to crop production and may require installation of drainage facilities. The problem will be intensified if higher dams are used, particularly if longitudinal dikes prove practicable and pools are maintained above the level of adjacent lands.

(*f*) Waterborne commerce: Estimates of potential waterborne commerce are available from a recent reevaluation of the existing project. It will be necessary that these be brought up to date and that savings in transportation costs be reevaluated in the light of the difference in cost between movement in the open river and through a system of slack-water pools.

(*g*) Power studies: Studies will be required to determine the amount, cost, and value of power which may be generated in installations in conjunction with the navigation dams. In addition, studies of operation of the multiple-purpose reservoirs upstream with the lower navigation season releases required by a slack-water project will be necessary to determine the increase in power values which might be developed.

(*h*) Other studies: Miscellaneous other studies will be required also. It will be necessary, for example, to determine the effect of a series of slack-water pools on stream sanitation and public health, and the nature and cost of corrective measures which may be required. Conversely, the chain of slack-water pools should have a very high value to recreation and fish and wildlife, and benefits from these sources should be evaluated to the fullest extent practicable.

(*i*) Local cooperation: Determination should be made of the portion of overall costs which should appropriately be borne by local interests, and local interests should be consulted to ascertain their willingness and ability to bear the portion of cost assigned to them.

(*j*) Economic analysis: Finally, an economic analysis must be made to determine the overall economic value of the project in the light of overall economic costs and benefits.

10. *Cost of investigation and time required.*—Probable costs and time required for an investigation as complex as this one cannot be estimated accurately until some of the required studies are initiated and work requirements can be more accurately foreseen. On the basis of data currently available, it is indicated that a study of preliminary examination scope will require a period of from 2 to 3 years for completion and will cost between $100,000 and $200,000.

11. *Desirability of investigation.*—A slack-water-navigation project on the Missouri River in place of the existing open-river regulation project would permit substantial reduction in navigation season flows, and consequent conservation of water for increased winter-season power releases without curtailment of navigation. There is, however, a limitation on the extent to which releases during the winter may be increased because of the increased hazard from ice jams with higher winter flows. Also, after occurrence of a reasonable period of normal or above normal precipitation and runoff and there has been an opportunity to fill the Missouri River reservoirs to desirable levels, it appears that reduction in summer releases for navigation will have a relatively minor effect on power generation at these reservoirs.

12. Navigation dams on the Missouri River between Sioux City and the mouth high enough to warrant installation of power generation facilities would inundate appreciable areas of highly developed land, with resultant high flowage damages, and would cause severe drainage problems in adjacent areas. Even a system of lower dams, which would permit the pools to be confined largely between existing river banks, would cause appreciable flowage damages and would cause serious drainage problems. Sedimentation problems in a series of slack-water pools will be serious.

13. A slack-water-navigation project between Sioux City and the mouth unquestionably will be very expensive. In addition to high construction costs, flowage damages, and the costs of providing for adequate drainage of adjacent lands will be very high. Maintenance of a navigable channel through the pools, in view of the anticipated high rate of sediment deposition, will be costly, and disposal of dredged material will be a major problem.

14. Navigation benefits accruing to a slack-water project are not likely to be substantially greater than those which will accrue to the existing open-river project. Determination of additional power benefits requires further study. It does not appear that there will be an extensive gain in power values from the upstream main-stem reservoirs over a long-term period in the future, but a substantial power value might be developed in connection with a series of high-lift locks and dams. Other benefits, such as those from recreation and fish and wildlife conservation, may be appreciable, but probably not of such a magnitude as to play an important part in project justification.

15. It appears, therefore, that economic justification of a slack-water-navigation project on the Missouri River from Sioux City, Iowa, to the mouth must be regarded as questionable. Nevertheless, in view of major physical and economic changes in the Missouri River Basin since prior studies of this type of improvement, it might be desirable to undertake an investigation of prelminary examination scope so that authoritative and up-to-date data on costs and benefits will be available.

STATEMENT OF THE DEPARTMENT OF THE INTERIOR

At the request of Senator James E. Murray, chairman of the Interior and Insular Affairs Committee, Assistant Secretary of Interior Fred G. Aandahl submitted to the committee, on behalf of his Department, the following comments on testimony previously taken in regard to the Missouri River operations:

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., July 24, 1957.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington, D. C.

DEAR SENATOR MURRAY: Your letter of May 10 asked that we comment on the transcript of the joint hearings on the Missouri Basin project held May 1–3 by the Interior and Public Works Committees.

The enclosed statements are furnished in response to that request.

Sincerely yours,

FRED G. AANDAHL,
Assistant Secretary of the Interior.

MISSOURI RIVER BASIN PROJECT—ECONOMIC ANALYSES

In response to questions raised during the May 1957 hearings, the financial summaries of the Missouri River Basin project appearing in the accompanying table were selected to trace the cost allocations and repayment of the project by periods since its authorization in 1944. The major changes which have occurred are discussed briefly in connection with the respective summaries.

The plan of development for the Missouri River Basin prepared by the Bureau of Reclamation was presented in the report of the Secretary of the Interior which was submitted to Congress in 1944 and printed as Senate Document No. 191, 78th Congress. The plan prepared by the Corps of Engineers was presented in the report of the Secretary of War and printed as House Document No. 475, 78th Congress. Certain adjustments in the physical plan were made by mutual agreement between the Bureau of Reclamation and the Corps of Engineers to coordinate the two plans which are presented in Senate Document No. 247, 78th Congress. No economic analyses or cost allocations are presented in either the corps' plan in House Document No. 475 or in the reconciliation report in Senate Document No. 247, and no cost allocation was made in 1944 for the plan in Senate Document No. 247. No cost figures are included in Senate Document No. 247.

Using the cost data presented in House Document No. 475 and Senate Document No. 191 and making approximate adjustments for the revisions in plan made in Senate Document No. 247, the total cost at the time of authorization, based on 1940 prices, would have been more than $1.4 billion. Present-day construction costs are nearly three times as high as in 1940.

The cost allocation and repayment summaries as reported for Senate Document No. 191 are based on the summaries appearing on page 27 and on the cost allocations to power appearing on pages 141, 142, and 188 of Senate Document No. 191. It is assumed that the latter represent allocations to commercial power although the allocations to the transmission systems appearing on pages 142 and 188 include some cost properly allocable to irrigation pumping power. The allocation to irrigation used in this summary was obtained by subtracting the allocation to power and to municipal water from the total reimbursable costs.

The irrigation benefits were measured in terms of expected annual increase in

gross crop values. The annual value of power at full development was used as the measure of power benefits. Although final evaluation of flood control benefits had not been made, it was assumed that they would at least equal the costs of the flood control works proposed by the Corps of Engineers.

In January 1950 an analysis on the Missouri River Basin project was made for use as a basis for the Report on Proposed Interim Rate Schedules for Missouri River Basin Project dated March 1950, in which interim power rates were established for the project.

Table 3 on page 92 of the Missouri Basin Survey Commission Report of January 1953 is entitled "Comparison of Allocation of Cost by Two Federal Agencies on Identical Main Stem Dams, Missouri Basin." It is stated that one allocation is from information supplied by the Bureau of Reclamation and that another allocation is from information supplied by the Corps of Engineers. However, only a part of the allocation attributed to the Bureau of Reclamation is from an allocation made by that agency. In September 1951, the Bureau made an allocation of the Corps of Engineers main stem reservoir system based on total estimated costs of construction supplied by the Corps of Engineers in 1951, as follows:

Bureau of Reclamation allocation, September 1951 (main stem reservoirs only)

Unit	Power	Irrigation	Flood control and navigation	Total cost
Fort Peck	$35,268,000	0	$121,632,000	$156,900,000
Garrison	51,300,000	0	242,295,000	293,595,000
Oahe	114,625,000	0	202,875,000	317,500,000
Big Bend	49,500,000	0	0	49,500,000
Fort Randall	61,800,000	0	135,500,000	197,300,000
Gavins Point	31,444,000	0	29,730,000	61,174,000
Total	343,937,000	0	732,032,000	1,075,969,000

It will be noted that the figures for the allocations to power in this allocation are identical with those shown in table 3 of the Missouri Basin Survey Commission report but that the figures for total costs and for the allocations to flood control and navigation are not the same. The data submitted to the commission by the Corps of Engineers in 1952 included figures for total costs of the main stem reservoirs that were on a later basis than those used by the Bureau of Reclamation in the September 1951 allocation, and apparently the commission used the Bureau's 1951 power allocation with the corps' 1952 cost figures, obtaining the figures used by the commission for the flood control and navigation allocations by subtraction.

This results in a reported allocation of $16 million of the cost of Big Bend Reservoir to flood control and navigation by the Bureau of Reclamation. Actually, the Bureau has never made an allocation of costs of Big Bend Reservoir to flood control and navigation.

In view of the fact that the comparative data being furnished herein is on the overall project and not on individual segments of the project, no further comment is offered on this separate analysis of the six main stem reservoirs made by the Missouri Basin Survey Commission.

Subsequent to authorization of the project and prior to the April 1955 studies the allocations of costs and the payout studies for the Missouri River Basin project in Bureau of Reclamation analyses were made entirely by the Bureau of Reclamation, without the approval of the Corps of Engineers, based on the following general criteria and procedures:

1. Allocations to nonreimbursable flood control and navigation purposes equal to the lesser of (1) the capitalized annual benefits or (2) the cost of a single-purpose alternative.

2. Remaining costs allocated among the reimbursable purposes of irrigation, power and municipal and industrial water by (*a*) the alternative justifiable expenditure method and (*b*) the priority-of-use method and the average of the two used as the tentative allocation.

3. An adjustment in the power allocation, based on the proportion of peak kilowatt pumping demand to the dependable capacity of the power system, was made to separate non-interest-bearing irrigation pumping power from interest-bearing commercial power.

4. No interest during construction was included in the cost allocation or the payout study.

5. The payout studies were based on use of the interest component from power repayments to help pay the costs allocated to irrigation.

In the April 1955 studies the allocations made by the Corps of Engineers were used for the facilities constructed by that agency. The remainder of the study was made by the Bureau of Reclamation and was based on the following major revisions in the criteria and procedures:

1. All costs were allocated by the separable costs-remaining benefits method where separable costs were available and by the alternative justifiable expenditure method where separable costs were not available. (A further suballocation between non-interest-bearing irrigation pumping power and interest-bearing commercial power was made as in previous cost allocations.)

2. Interest during construction was included for costs allocated to commercial power and municipal and industrial water which are reimbursable with interest.

3. The project payout study does not apply interest on the commercial power investment as an aid in repaying the irrigation investment.

The method of allocation used by the Bureau prior to April 1955 is similar to that used in Senate Document No. 191, 78th Congress, in that it maximized the allocation to nonreimbursable functions. However, the allocation used by the Bureau of Reclamation in that document was questioned by the Corps of Engineers in the letter of April 25, 1944, from the Chief of Engineers commenting on the plan of the Bureau of Reclamation. This letter appears on page 6 of Senate Document No. 191.

Although the physical plan was coordinated between the two agencies in Senate Document No. 247, 78th Congress, the Corps of Engineers never accepted the Bureau's method for allocation of the costs of the main stem reservoirs and so did not concur in the allocations made by the Bureau prior to the April 1955 analysis.

In the meantime the Subcommittee on Benefits and Costs of the Federal Interagency River Basin Committee after studying the problem for several years prepared a report in May 1950 entitled "Proposed Practices for Economic Analysis of River Basin Projects." In that report the separable costs-remaining benefits method is recommended as the preferred method for general use in allocating costs to obtain the objective of distributing the project costs equitably among the purposes served by the project. In 1954 this method was adopted for use by the Corps of Engineers, the Bureau of Reclamation, and the Federal Power Commission.

Although acceptance of this method of cost allocation was under serious consideration before, one of the factors prompting the Department of the Interior to adopt the separable costs-remaining benefits method was the findings of the Missouri Basin Survey Commission in comparing the cost allocations of the Bureau of Reclamation and the Corps of Engineers for the main stem reservoir system. The commission did not fully endorse the allocation as made by the Corps, which was based in part on the separable costs-remaining benefits method. It did seriously question the allocation made by the Bureau of Reclamation which maximized the allocation to nonreimbursable functions.

For many years the Bureau of Reclamation and the Corps of Engineers were in dispute over the question of which agency should make the cost allocation for the main stem reservoir system. In 1954 a working understanding was reached between the Department of the Interior and the Department of the Army that in such projects as the Missouri River Basin project where the two have joint responsibilities the cost allocation made by the construction agency would be accepted for the economic analysis of the project.

The separable costs-remaining benefits method of cost allocation is designed to provide for an equitable sharing of the savings to the several project purposes resulting from their inclusion in a multiple-purpose project. The separable costs attributable to each purpose are first assigned to that purpose—these separable costs for a purpose being the difference in cost of the multiple-purpose project with and without this particular purpose. The residual or joint costs of the multiple-purpose project are distributed to the several purposes in direct proportion to the differences between the respective separable costs and the lesser of the benefits or the alternate costs for each purpose. Thus, the joint costs, which are the difference between the total cost of the multiple-purpose project and the sum of the separable costs of the several purposes, are distributed among the purposes in such a manner that the cost allocated to any purpose is at least equal to the

separable cost, which is the cost of adding it to the rest of the multiple-purpose project, and is not greater than the lesser of the benefits attributable to that purpose or the cost of the most economical single-purpose alternative.

The type of development contemplated in authorizing documents and in operating studies supporting the cost allocations and economic analyses are based on expected operations for irrigation, flood control, navigation, and power. While no objections were raised during the recent hearings to operation for irrigation and flood control, it appears from testimony given that the power users think that the main stem reservoirs of the Missouri River Basin project should be operated primarily for power, which would be detrimental to navigation. At the same time, it appears that they are advocating a method of cost allocation that maximizes the allocations of costs to nonreimbursable functions, one of which is navigation. These two views are not compatible with a sound approach to the problem of cost allocation. If power is given a priority in the use of the reservoir system at the expense of navigation, this should be reflected in the cost allocation by adjustments to allocate more costs of the project to power and less to navigation to attain an equitable allocation.

Payout studies for the Missouri River Basin project have been based on average revenue for sale of firm power of approximately 5.5 mills per kilowatt-hour ever since the Bureau of Reclamation plan was presented in Senate Document No. 191, 78th Congress. In the hearings it was asked what actual power rates are being received. The actual rates received are as follows:

Average rates

[In mills per kilowatt-hour]

Year	Firm power	Nonfirm power	Project irrigation pumping power
1954	6.13	2.87	1.45
1955	5.78	2.76	2.51
1956	5.45	2.80	2.50

Complaints were made in the hearings that power rates are high because the costs that are allocated to irrigation that are in excess of payments by the water users and conservancy districts are to be repaid by power revenues. It was asked what the firm power rate would be if this rate were set to pay out the allocation to power with interest on the unpaid balance in 50 years, instead of in 43 years as in the April 1955 economic analysis. No detailed payout study has been made to determine this but a rough calculation shows that if no irrigation assistance were required for 50 years the reduction that could be made in the firm power rate would be only approximately two-tenths of 1 mill per kilowatt-hour. Thus the firm power rate would be reduced from 5.5 to 5.3 mills per kilowatt-hour. Moreover, this assumes that there would be no change in the cost allocation. Actually, if the power revenues are not made available for aid to irrigation the proposed irrigation developments would not be feasible. Therefore, most of the irrigation would have to be left out of the project and this would require that a new cost allocation be made for the main stem reservoir system to reallocate to other project purposes, including power, the costs now allocated to irrigation. Also, 20 percent of the cost of the entire power system is now allocated to non-interest bearing project irrigation pumping power. If the irrigation is left out of the plan, 100 percent of the power investment would become interest-bearing instead of 80 percent as at present. This would be offset, in part, by the increased revenues derived from selling additional power at the commercial power rate. In these circumstances, the overall irrigation benefits of the project would be lost.

In referring to the problem of power aiding in the repayment of costs allocated to irrigation, in the hearings, it was stated that the feasibility of much of the potential irrigation development has not yet been determined. This is correct. The plans presented in the authorizing documents for this large basinwide development were of necessity based for the most part on reconnaissance data. No detailed studies have been made, as yet, for much of the irrigation development. Incompleteness of the plan and inadequacies of the data at the time the project was authorized were recognized in Senate Document No. 191, 78th Congress, the authorizing document. This situation is specifically referred to in

the Board of Review report on the reclamation plan; see paragraph 22 on page 14 of Senate Document No. 191 from which the following statement is quoted:

"The project plan includes hundreds of major engineering works, such as dams and powerplants, and thousands of important structures. The plans on which the estimates are based were necessarily of a preliminary nature. At many of the dam sites, exploratory work has been carried far enough to obtain dependable basic data. At other sites, further exploratory work must be undertaken before details of the structures can be determined and better estimates made. All the works proposed in the report are of the same general type which the Bureau of Reclamation has been constructing in the West since 1902, and no novel or unprecedented problems are involved. All cost estimates are tentative, and are subject to revisions in the light of further information which must be developed by exploratory work and detailed design studies before construction is undertaken. A lump-sum allowance has been included for contingencies for unforeseen conditions, but no allowance has been included for major economic changes. All estimates are based on costs as of January 1, 1940, and an appropriate factor will therefore have to be applied to conform such estimates to prices existing at the time the construction of any feature of the development is initiated."

Detailed studies of specific irrigation units have been in progress since the authorization of the project. Before any irrigation unit is placed under construction advance planning studies are made to determine a definite plan of development and to prepare an economic analysis to determine the justification for each potential development. Those irrigation units that are not economically justified are not proposed for construction.

Bureau of Reclamation Role in Operation of Main Stem Reservoirs

In June 1951 a meeting among personnel from the Corps of Engineers and the Bureau of Reclamation was held in Omaha, Nebr. At this meeting it was agreed that a work group composed of engineers and hydrologists from the Corps and the Bureau would be established to draft a report on the operation of the main stem reservoirs on the Missouri River. The original group as appointed by the division engineer of the Missouri River Division of the corps and by the regional directors of regions 6 and 7 of the Bureau consisted of 3 men from the corps, 2 from region 6 and 1 from region 7. In February 1952 a comprehensive report was completed entitled, "Work Group Report on Coordination of Interests of Bureau of Reclamation and Corps of Engineers in Operation of Main Stem Reservoirs, Missouri River." This report set up the framework and rules of procedure for cooperative operation of the Missouri River installations by the corps and the Bureau. It has been followed almost to the letter each year since its preparation.

In line with this report the work group was continued, with only a few changes in personnel, to prepare the annual operating plan called for in the report. The work group now consists of 3 people from the corps, 3 from region 6 and 2 from region 7 of the Bureau.

To date complete agreement has been reached between the corps' and Bureau's representatives on the details of each annual operating plan which is normally prepared in the corps' office using power and hydrologic data supplied by the Bureau together with data available in the corps' offices. Since the Bureau is responsible under the law for Federal irrigation development it insists that the annual operating plan adequately cover irrigation water requirements. Because the Bureau is the marketing agency for main stem power, it requests that the annual operating plan provide sufficient power generation to meet contractual firm power commitments. In the event of an inadequate water supply to carry such commitments plus all navigation requirements insistence is placed on an equitable division of water use between navigation and power generation. During the present period of subnormal runoff and the necessity for filling dead storage in the reservoirs there have been periods when some deviations from the annual operating plan have been agreed upon by the operating personnel of both the corps and the Bureau but at no time has there been any curtailment of firm power deliveries. If, in administering the annual operating plan, it develops that nonfirm energy could be produced the Bureau and the corps agree on the amount. It is expected that markets will exist for sale of nonfirm energy whether produced in the navigation or nonnavigation season. To date there has been no conflict of interest between water releases, with accompanying power generation, and power sales which has not been amicably resolved by the operating personnel of the two agencies.

In the preparation of each annual operating plan the Bureau has the responsibility of furnishing the following:

(*a*) Estimates of depletion of the main stem flow by tributary irrigation use and reservoir operations.

(*b*) Assistance in the preparation of forecasts of main stem water supply.

(*c*) Estimates of power and energy requirements to meet firm power contractual commitments, and estimates of possible sale of nonfirm power and energy.

(*d*) A thorough review in the interests of irrigation and power of the plans prepared by the corps.

Shortly after the work group started functioning as the author of the annual operating plan it was decided that each plan should be submitted for comment and approval to an unofficial advisory committee composed of representatives of the Missouri Basin States, the Federal Power Commission, the Fish and Wildlife Service, the Weather Bureau, and the Public Health Service. This was done for several years and for the past 2 years a meeting was held each year with this advisory committee before the annual operating plan was formulated in order to obtain the ideas of these agencies as a guide to the most acceptable plan.

At the spring meetings with the Advisory Committee the Corps and the Bureau have parallel responsibilities in presenting to the Committee the facts upon which the annual operating plan is to be based. The corps presents the water supply prospects and the flood control and navigation requirements. The Bureau presents the tributary water supply and depletions due to upstream storage and irrigation use and the power and energy requirements. The various agencies on the committee are polled and each supplies its comments. At a meeting of the work group held in the summer after the water supply is well assured the annual operating plan is formalized for submission to the Advisory Committee in August or September for final adoption.

It should be noted that the efforts of the work group and the individual offices of the Bureau and the corps have been directed toward increasing storage of water in the main stem reservoirs whenever possible without seriously impairing navigation and power operations. For example, curtailment of the navigation season by about 6 weeks this past year was incorporated in the annual operating plan to provide sufficient stored water to carry the firm power load next winter.

Missouri River Basin project—Comparison of economic analysis

Type of analysis and function	April 1944, S. Doc. No. 191, 78th Cong.	December 1944, S. Doc. No. 247, 78th Cong.[1]	March 1950, interim power rate schedules	August–September 1952, data furnished, Missouri Basin Survey Commission [2]			September 1953, economic analysis	April 1955, economic analysis
				Bureau of Reclamation	Corps of Engineers	Total project		
Project data:								
Irrigable acres:								
Full	4,760,400		4,900,000	5,377,410		5,377,410	4,810,000	3,598,100
Supplemental	547,300		504,000	1,113,850		1,113,850	1,140,000	736,900
Total	5,307,300		5,404,000	6,491,260		6,491,260	5,950,000	4,335,000
Kilowatts of power	1,154,767		2,365,810	1,048,680	1,550,000	2,598,680	2,538,300	2,434,400
Maximum annual generation, kilowatt-hours	4,717,700,000		9,149,301,000	4,340,561,000	7,631,000,000	11,971,561,000	13,977,100,000	13,003,500,000
Allocation of cost:								
Flood control and navigation	$516,545,700		$1,373,560,000	$290,928,000	$657,190,000	$948,118,000	$1,776,170,000	$1,849,576,000
Irrigation, including pumping power	[3] 497,209,000		2,286,033,000	2,323,066,000	185,333,000	2,508,399,000	2,713,152,000	2,235,749,000
Commercial power	[4] 223,891,000		596,370,000	732,737,000	657,916,000	1,390,653,000	874,252,000	1,144,238,000
Municipal and industrial water	20,000,000		43,550,000	19,468,000		19,468,000	17,748,000	[5] 8,637,000
Fish and wildlife				7,092,000		7,092,000	3,698,000	2,292,000
Recreation				4,145,000	3,050,000	7,195,000	6,631,000	16,037,000
Deferred construction							58,176,000	63,643,000
Investigations								[6] 55,567,000
Multipurpose not allocated					760,767,000	760,767,000		
Total cost	1,257,645,700		4,299,513,000	3,377,436,000	2,264,256,000	5,641,692,000	5,449,827,000	5,375,739,000
Repayment (payments):								
Irrigation	298,000,000		301,928,000				661,312,000	385,528,000
Power	423,100,000		2,580,475,000				2,922,804,000	3,073,070,000
Municipal water	20,000,000		43,550,000				31,365,000	7,600,000
Deferred construction self-liquidating							58,176,000	56,978,000
Total repayment	741,100,000		2,925,953,000	[7]		[7]	3,673,657,000	3,523,176,000

See footnotes at end of table.

Missouri River Basin project—Comparison of economic analysis—Continued

Type of analysis and function	April 1944, S. Doc. No. 191, 78th Cong.	December 1944, S. Doc. No. 247, 78th Cong.[1]	March 1950, interim power rate schedules	August–September 1952, data furnished Missouri Basin Survey Commission[2]			September 1953, economic analysis	April 1955, economic analysis
				Bureau of Reclamation	Corps of Engineers	Total project		
Nonreimbursable:								
Flood control and navigation	$516,545,700		$1,373,560,000				$1,776,170,000	$1,849,576,000
Municipal and industrial water								[8] 1,037,000
Fish and wildlife								1,950,000
Total nonreimbursable	516,545,700	$1,373,560,000					1,776,170,000	1,852,563,000
Total cost	1,257,645,700		4,299,513,000				5,449,827,000	5,375,739,000
Corps of Engineers cost			2,958,367,000	$3,377,436,000		$3,377,436,000	3,466,760,000	2,763,986,000
Bureau of Reclamation cost			1,360,856,000		$2,264,256,000	2,264,256,000	[9] 1,983,067,000	[9] 2,557,513,000
Interest during construction								54,240,000

[1] No figures for cost estimate, allocations, irrigable acreage or kilowatts were included in S. Doc. 247 and no analysis of the project, as authorized, was made at the time of authorization.

[2] Data supplied by each agency for its own units only.

[3] Derived figure.

[4] Approximate allocation from S. Doc. 191; include all of transmission systems.

[5] $1,037,000 (which includes $37,000 interest during construction) is for Ellsworth Air Force Base, at Rapid City, S. Dak.

[6] Includes Buford-Trenton work, investigations of inactive units, work of other Interior agencies and investigations of potential units.

[7] Data on average annual revenues only furnished the commission.

[8] Includes $25,061,000 for Fort Peck transmission system, $1,116,000 of the cost of Kendrick project allocated to Kortes unit.

[9] Includes $23,277,000 for Fort Peck transmission system, $1,116,000 of the cost of Kendrick project allocated to Kortes unit, Missouri River Basin project, and $38,510,000 for other agencies of the Department of the Interior.

MISSOURI RIVER BASIN POWER MARKETING

PART 1—MISSOURI RIVER BASIN POWER SYSTEM

GENERAL ADMINISTRATION OF POWER ACTIVITIES

The general administration and control of Bureau of Reclamation power sales contracts and related matters of the Missouri River Basin project are under the jurisdiction of region offices in Denver, Colo., and Billings, Mont. There is only administrative direction and review by the Washington office concerning power matters handled by the regional offices to insure that the interests of the Federal Government are adequately protected and that established policy is followed.

The Assistant Commissioner and Chief Engineer's office reviews the technical aspects of power sales and marketing contracts during the negotiation period.

SYSTEM PLANNING

Plans for developing a project such as Missouri River Basin are based on market studies prepared by the Federal Power Commission, together with data gathered by the Bureau.

The Assistant Commissioner and Chief Engineer's office prepares reconnaissance feasibility and final designs, quantitative estimates, and technical specifications for electrical features of power and pumping systems, transmission lines, substations, and other facilities.

The alternating current network analyzer is used by the Assistant Commissioner and Chief Engineer to make board studies in providing technical advice and assistance in the planning, installation, operation, maintenance, and repair of electrical systems and equipment.

POWER POOL OPERATIONS

A joint study has been recently initiated by the power producing agencies both publicly and privately owned in the Missouri River Basin to ascertain the needs and benefits of a pooled operation of generating and transmission facilities.

SPLIT OF ELECTRICAL FACILITIES AT FORT PECK

Prior to the 230-kilovolt interconnection of Garrison and Fort Randall powerplants the Fort Peck power system was tied to the Montana Power Co. system and through it with the very strong Northwest power pool. Generally, the BPA hydroelectric system regulates frequency for the Northwest power pool. Consequently, it swung in synchronism with the Northwest power pool and no great difficulty relative to power flow and supply from the Fort Peck powerplant was encountered.

However, upon completion of the 230-kilovolt transmission line interconnecting Garrison powerplant with Fort Randall, a serious technical problem was raised because no longer would the Fort Peck system be tied to the Northwest power pool alone but also would be tied to the Great Lakes power pool which is inherently different because of the predominance of the steam plants. The practical possibility of maintaining such a tie between the Northwest and the Great Lakes power pools, was nil because of the weak tie of Fort Peck to the West through the 161-kilovolt Fort Peck-Rainbow line and the excessively long 115-kilovolt Fort Peck-Williston-Garrison line which is also weak. Subsequent events proved this conclusion was correct because on January 27 in a test aimed at yielding data on synchronizing savings, a through tie was attempted at Fort Peck and it held together for a maximum of 5 minutes and 40 seconds after initial closure.

Thus, it is necessary to separate the Missouri River Basin transmission system at some point. The solution chosen was to "split" the bus at Fort Peck. At the present time (May 1957) the bus is "split" so that the 15-megawatt generator at Fort Peck is interconnected with Canyon Ferry powerplant and the Northwest power pool and the two 35-megawatt generators are connected to the east through the 115-kilovolt line to Glendive and Williston.

SINGLE AGENCY CONTROL

Lacking the specifics and details that would constitute a single agency for the administration of the Missouri River Basin, no logical comparisons can be made to the present power operations by the Corps of Engineers and the Bureau of Reclamation. However, in the absence of such an agency, it can be said that no

problems have arisen even during the difficult period of initial operation that have not been handled satisfactorily by collaboration between the agencies at the required levels. It is confidently expected that this type of collaboration will continue and will result in efficient and proper operation of the project and will obviate the necessity for drastic changes in operation that might seriously disrupt the successful development of the project.

PART 2—ALLOCATION OF POWER

PRELIMINARY AND FINAL ALLOCATIONS

The September 1953 marketing criteria of the Missouri River Basin project and later information releases stated that applications for additional power to become available would be received by the Bureau of Reclamation until January 1, 1954. After the applications were received and analyzed, many plans of power allotment were considered ranging from supplying a percentage of the applications as received to an allotment based on 1958 loads and to allotments predicated on a selection of customers to recognize relative needs, geographical location, or level of power costs. Several of the possible plans reflected such obvious inequities that they were not considered in detail. The Bureau of Reclamation studied the various methods with the objective of businesslike operations, equitably apportioning available power to preference customers having the greatest need and an allotment which effects the greatest economy and therefore results in the greatest net returns to the United States.

After making a preliminary allotment, the Bureau of Reclamation discussed the proposed allocations with power applicants in the eastern area at field meetings in Sioux Falls, S. Dak. and Bismarck, N. Dak., on April 5, 6, and 9, 1954. The power allotment plan received the general endorsement of customers in the area.

The allotment of power, based on the estimated 1948 needs of preference customers, taking into account power commitments by contracts executed or in negotiation, was submitted to the Department for approval and authority to execute implementing contracts and was approved by the Department on June 18, 1954.

FIRM POWER ALLOCATION

The power and energy available for sale on a firm power basis is determined after taking into consideration the hydrology of stream flow, the length and severity of less than average water conditions, the integration of water operations on different streams, the load pattern of separate sections of the marketing area, and other pertinent factors. Determinations also anticipate the purchase of thermal generated energy from available sources in the area to supplement energy available in low water years to an amount not exceeding that which would be available under average water conditions. As a minimum, firm energy capabilities are considered to be not less than 110 percent of adverse year energy provided this does not result in greater than average year energy.

The firm power supply for the eastern area of the Eastern Division of the Missouri River Basin project, which was estimated to be available to meet December 1958, loads, comprises an estimated 531,000 kilowatts of power from the Gavins Point, Fort Randall, and Garrison powerplants as well as an importation of 30,000 kilowatts from the powerplants of the western (Montana) area of the eastern division. At the time of the allocation of firm power, there were 340,625 kilowatts either committed by contract or in active negotiation. This left an additional 190,375 kilowatts for distribution to preference customers in the eastern area of the eastern division. This power was allocated to customers as follows:

(1) Supply in full the estimated 1958 requirements of preference applicants in North Dakota, South Dakota, and in northern Minnesota.

(2) Supply remaining power to preference customers elsewhere in the marketing area in amounts equal to their estimated 1958 loads, times the ratio of the available power to the sum of such loads. This resulted in an effective allotment of power equal to 50 percent of estimated 1958 requirements.

There was no allocation of power made in the western area of the eastern division (State of Montana) and the western division since there was sufficient power for preference customer needs. The Bureau is contracting for the estimated power needs of customers in these areas up to January 1, 1960.

CLASSIFICATION OF AVAILABLE POWER

Power and energy available for marketing is classified into four general categories, i. e.:

Firm power, as that service intended to fit under the customer's annual and daily load pattern.

Secondary energy, as a class of nonfirm power which will be available for extended seasonal periods and which is suitable for replacement of fuel generated energy on a basis of plant maintenance in cold reserve.

Dump energy, as a class of nonfirm power which will be available from time to time as the result of energy generation from water which cannot be stored or saved. Dump energy is salable chiefly as fuel replacement energy.

Peaking power, peaking capacity is that system capacity on a minimum water year basis which is in excess of the firm power capacity which is supportable by energy available in an average water year.

Firm power

Firm power is power available to customers to supply the annual power and energy needs within the limits of daily and seasonal load pattern.

Seasonal firm power

There is a surplus of energy available during the navigation season which can be marketed on a firm basis during that time. Development in recent years of a need for pumping power during summer months chiefly in Nebraska, and the growth of summer air-conditioning load in the market area has resulted in a growing requirement for power and energy during periods when the Bureau has additional capacity and energy available for sale to customers. Negotiations are in progress for the sale of large blocks of seasonal firm power to Nebraska public power system and to Omaha public power district. Service in this category is supplied at the monthly firm power rate.

Secondary energy

Secondary is for sale to customers who have alternative sources of firm power capable of serving loads to the extent of the secondary service on not more than 24-hours' notice of withdrawal of secondary service by the Bureau.

There is no allocation of secondary, and preference customers who qualify have first preference in obtaining secondary energy.

Dump energy

Dump energy will be available to a customer only on declaration by the Bureau of Reclamation and will be sold only to customers who have and maintain generating facilities. Preference customers eligible for such energy will have first preference in each rate block of dump sales.

PEAKING CAPACITY

Peaking capacity is normally intended for use by customers during the buildup period of load requirements and prior to the time the customer constructs generating facilities for such load.

No energy will be considered associated with peaking capacity. The conditions of sale of peaking capacity will normally require that the purchaser supply to the Bureau, during off-peak period, energy equivalent to the energy delivered by the Bureau during the period of use of peaking capacity.

MARKETING AREA

The marketing area of the eastern division of the Missouri River Basin project is described as "Montana east of the Continental Divide, all of North and South Dakota, Nebraska east of the 101° meridian, Iowa west of the 94½° meridian, and Minnesota west of a line on the 94½° meridian from the southern boundary of the State to the 46° parallel and thence northwesterly to the northern boundary of the State at the 96½° meridian."

The marketing area of the western division of the Missouri River Basin project is described as those portions of Wyoming, Colorado, and Nebraska, west of Ogallala, which are served by the Bureau's transmission system and wheeling arrangements.

Part 3—Power Rates

INTRODUCTORY

The Bureau of Reclamation disposes of power and energy surplus to needs for operation of its projects at the lowest possible rates consistent with prudent management and project revenue requirements. Rate schedules are in general designed to produce revenues which, together with other applicable revenues, if any, will be sufficient to cover the cost of producing and transmitting power and energy, including necessary replacements, to amortize the power investment with interest within 50 years from the date each facility becomes revenue producing, and to cover such other fixed charges as the Secretary deems to be proper.

Rates are reviewed annually to assure that the estimated future revenues when considered in connection with past operations will be sufficient to meet the obligations payable from sales of power.

POSTAGE STAMP PRINCIPLE OF AREA APPLICATION OF RATES

All rate schedules used in the marketing of power by the Bureau of Reclamation follow the postage stamp principle. In other words, insofar as the rate is concerned, the price of the power and energy in any category is the same at the powerplant as it is at a remote point of delivery.

UNIFORMITY OF APPLICATION OF RATES

Bureau of Reclamation rate schedules within each classification of service and area of applicability are applied uniformly to all customers purchasing power regardless of the type of customer involved.

BASIS FOR FIRM, SECONDARY AND DUMP RATES

Firm rates

Bureau of Reclamation firm power rate schedules are of the two-part demand or capacity charge and energy charge type designed to result in the same average rate per kilowatt-hour for all loads served at the same load factor and under similar delivery conditions regardless of the magnitude of power requirements.

Secondary rates

Secondary energy or "fuel replacement" energy, is furnished under the energy charges of the firm power rate schedule without the demand or capacity charge. The ommission of capacity charges recognizes the customer's costs in keeping in readiness the alternate source of power which must necessarily be used when secondary energy is not available.

Dump rates

Dump energy is sold at 85 percent of the decremental cost of fuel in the customer's full plant, but with a ceiling at the level of the first block of the energy section of the wholesale firm power rate schedule. Dump energy sales are made with a view of obtaining the maximum revenue. Rate blocks of about one-half mill variation have been set beginning with the first block of the energy section of the rate schedule and dropping successively as low as need be to sell all dump energy available. When available, dump energy will be offered in the first block, with preference given to preference customers. Any unsold energy will then be offered similarly in each successive lower block until all dump energy is sold.

Part 4—System Marketing Operations

SURPLUS POWER

Electrical power and energy is produced at several powerplants of the Missouri River Basin project, some of which are constructed by the Corps of Engineers and some by the Secretary of the Interior. All power and energy not needed for operation of project works, including irrigation works, is marketed by the Bureau of Reclamation under reclamation law.

On the basis of coordinated studies by the Corps of Engineers and the Bureau of Reclamation, determinations are made from time to time of the salable power and energy and contracts are negotiated for the sale of power surplus to project requirements.

BASIS FOR FIRM POWER CAPACITY

The salable firm power capacity is that capacity estimated to be available in the fourth year of the 1930–33 drought period which can be supported at the

general market area load factor with energy based upon average year water conditions. This determination contemplates occasional purchase of thermal energy to augment available energy in less than average water years.

STEAM ENERGY PURCHASES

Thermal or steam generated energy may be purchased from available sources in the Missouri River Basin project by the Bureau to supplement energy available in low-water years to an amount not exceeding the energy which would be available under average water conditions.

A considerable market is developing in the area for firm seasonal power for irrigation and air conditioning loads. With such a market available for service at firm power rates, the maximum use of system capabilities can be obtained without purchase of thermal capacity for increasing the amount of firm power and energy for sale.

INTERIM OPERATION DURING CONSTRUCTION

During construction of reservoirs and generating facilities of the Missouri River Basin project, the Bureau will initiate service to power allottees in an orderly fashion as such power becomes available. Customer contracts provide for interim contract rates of delivery prior to January 1, 1959, in the eastern division of the project.

During the interim period of operation, water must be released for power production, navigation, etc., and additional water retained to fill the reservoirs. The dependability of electrical facilities for firm power must also be considered. Thus, the interim operation during the construction period is a different type of operation than the ultimate operation contemplated when the project is completed.

ULTIMATE OPERATION

Upon completion of the Missouri River Basin dams by the Corps of Engineers and when the reservoirs are filled to proper levels, then a more permanently stabilized operation may be established which recognizes all the project needs in the releases of water, that is, navigation, flood control, power, irrigation, etc. Operations under ultimate conditions will not have the same problems involved in operation during the interim construction period and should follow a more orderly pattern with less need for periodic adjustments.

GENERAL MARKETING AREA

Late in 1953, the Secretary of the Interior established a marketing area which encompassed those areas within reasonable transmission distance from project powerplants or could be served from contemplated or existing wheeling arrangements. In the Missouri River Basin project, eastern division, the marketing area is technically described as "Montana east of the Continental Divide, all of North and South Dakota, Nebraska east of the 101° meridian, Iowa west of the 94½° meridian, and Minnesota west of a line on the 94½° meridian from the southern boundary of the State to the 46° parallel and thence northwesterly to the northern boundary of the State at the 96½° meridian."

In the western division of the project the market area is generally described as those portions of Wyoming, Colorado, and Nebraska west of Ogallala which are served by the Bureau's transmission system and wheeling arrangements.

NONFIRM ENERGY MARKET AND SALES

Nonfirm energy will be made available only to customers, both preference and nonpreference, who have and maintain, or lease, fuel-burning generating equipment or who have other firm capacity arrangements capable of supplying loads when nonfirm service is not available. In administering the sale and delivery of nonfirm energy, the Bureau will recognize the rights of preference customers in each of the categories of secondary and dump energy.

Where wheeling charges are involved in delivering nonfirm energy, such charges must be borne by the customer.

WHEELING OF POWER

The Bureau of Reclamation will contract to utilize the surplus capacity of facilities of others for transmitting power and energy to loads and customers of the United States when it can do so upon reasonable terms.

The Bureau absorbs reasonable wheeling costs not exceeding 1 mill and related losses in the wheeling of firm power to its own customers over the lines of a third party. In certain instances, in lieu of wheeling power over the lines of public bodies and cooperatives (such as NPPS, East River, and Minnkota, where the nonprofit customers or member cooperatives have representation with the parent agency and purchase power for resale), the Bureau will contract direct with the parent agencies and allow a discount not to exceed 1 mill per kilowatt-hour on firm energy sold and delivered to the agency.

Normally where the wheeling agent has generating facilities, the wheeling agreement is made on a reciprocal basis, i. e., each party has rights to wheel over the surplus capacity of facilities of the other party to its own loads or customers.

Bureau wheeling contracts provide for such service only where there is a connection of the customer with the wheeling agent for direct delivery of Bureau power to the load or customer. An allowance for the energy losses in wheeling is furnished by the Bureau. The Bureau neither requests nor grants concessions in an otherwise applicable wheeling charge to recognize that wheeling of power may actually be accomplished by displacement in energy flows between the respective parties.

The contract between the Bureau and the Montana Power Co. (179r–1838) provides that the Bureau may use the two 100,000-volt transmission lines of the company between Great Falls and East Helena, Mont., to transmit power up to the normal capacity of the Canyon Ferry powerplant for a compensation to the company of $45,000 per year. This payment is not dependent on the quantity of energy transmitted.

The Bureau lines are not automatically available for wheeling service for other power distributors. The use of Bureau lines by others for their own transmission of power is covered by contract with each customer. Generally, use of transmission line by others is granted only to the extent that surplus capacity is available above the transmission needs of the Bureau. Within the availability of surplus capacity, the Bureau is willing to wheel for other power distributors upon execution of a contract.

Department of the Interior Responsibility for Power Marketing

The Department is proceeding in the Missouri Basin on the premise of the applicability of section 9 of the Flood Control Act of 1944. This section refers to the Federal reclamation laws. It is our responsibility under these laws to sell project power, to give preference to public agencies and cooperatives, and to recover the Federal investment. The Reclamation Act of 1939 (or the 1944 Flood Control Act either, for that matter) does not state or imply that the Government has undertaken or is required to guarantee a source of power to preference customers at any time after absorption of full capacity of the authorized power development.

The Department is carrying out its full responsibility in the administration of this project through a power-marketing program that effectively makes available the power and energy produced by the project under average water conditions. We find no legislative directives to proceed beyond this power potential of the authorized project.

The term "utility responsibility" is a generality capable of many variants in meaning. If it is taken to mean a continuing, legal responsibility for providing additional capacity to meet all power needs in an area in the sense of the obligation of a franchised utility having a monopoly on service within a defined area and with a correlative legal obligation thereby imposed to serve all area needs, it is a complete answer to say that none of the power marketing or development statutes under which this Department operates embraces any such concept.

The Congress has never preempted the field of wholesale power supply. Whether it should or not is another issue which the public, in the final analysis, must determine within constitutional concepts.

For its part, this Department is of the view that the people of each area should continue to retain the authority and responsibility for fulfilling their power needs, beyond the reasonable capabilities of those Federal projects that may be constructed from time to time, through entities and by methods of their own choosing.

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